

Edit an existing query or
compose a new query in the
Search Query Display.

Select a search number (#)
to:

- Add a query to the Search Query Display
- Combine search queries using AND, OR, or NOT
- Delete a search
- Run a search

Wed, 21 Nov 2007, 5:33:39 AM EST

Search Query Display

Recent Search Queries

- #1 (((modulus of elasticity or elasticity modulus) and (damping coefficient or coefficient of damping))<in>metadata)
- #2 (((modulus of elasticity or elasticity modulus) and (damping coefficient or coefficient of damping))<in>metadata)
- #3 (((modulus and elasticity)<in>metadata) <and> ((damping and coefficient)<in>metadata))<and> ((gimbal or load beam or head suspension)<in>metadata)
- #4 (((modulus and elasticity)<in>metadata) <and> ((damping and coefficient)<in>metadata))

[Help](#) [Contact Us](#) [Privacy &](#)

© Copyright 2007 IEEE -

Indexed by
 Inspec

Dial·g DataStar

options

logoff

feedback

help



databases

easy
search

Advanced Search:

Inspec - 1898 to date (INZZ)

limit

Search history:

No.	Database	Search term	Info added since	Results	
CP		[Clipboard]		0	-
1	INZZ	modulus ADJ of ADJ elasticity	unrestricted	784	show titles
2	INZZ	damping ADJ coefficient	unrestricted	1464	show titles
3	INZZ	coefficient ADJ of ADJ damping	unrestricted	5	show titles
4	INZZ	elasticity ADJ modulus	unrestricted	894	show titles
5	INZZ	suspension	unrestricted	22723	show titles
6	INZZ	1 OR 4	unrestricted	1654	show titles
7	INZZ	2 OR 3	unrestricted	1469	show titles
8	INZZ	5 AND 6 AND 7	unrestricted	0	-
9	INZZ	load ADJ beam	unrestricted	88	show titles
10	INZZ	8 AND 6 AND 7	unrestricted	0	-
11	INZZ	6 AND 7	unrestricted	5	show titles

[show all](#) | [hide](#) | [delete all search steps...](#) | [delete individual search steps...](#)
Enter your search term(s): [Search tips](#) ☐ Thesaurus mapping
 whole document
Information added since: or:


(YYYYMMDD)

search

☐ Images

Select special search terms from the following list(s):

- ☒ Publication year 1950-
- ☒ Publication year 1898-1949
- ☒ Inspec thesaurus - browse headings
- ☒

Inspec thesaurus - enter a term 

- ➔ Classification codes A: Physics, 0-1
- ➔ Classification codes A: Physics, 2-3
- ➔ Classification codes A: Physics, 4-5
- ➔ Classification codes A: Physics, 6
- ➔ Classification codes A: Physics, 7
- ➔ Classification codes A: Physics, 8
- ➔ Classification codes A: Physics, 9
- ➔ Classification codes B: Electrical & Electronics, 0-5
- ➔ Classification codes B: Electrical & Electronics, 6-9
- ➔ Classification codes C: Computer & Control
- ➔ Classification codes D: Information Technology
- ➔ Classification codes E: Mech., Manufac. & Production Engineering
- ➔ Treatment codes
- ➔ Inspec sub-file
- ➔ Language of publication
- ➔ Publication types

[Top](#) - [News & FAQs](#) - [Dialog](#)

© 2007 Dialog

Watko, Julie Anne

From: STIC-EIC2600@uspto.gov
Sent: Wednesday, November 21, 2007 6:46 AM
To: Watko, Julie Anne
Subject: Database Search Request Confirmation, Serial Number: 10788863

Examiner JULIE WATKO:

This is a machine-generated confirmation email to let you know that your search request has been sent to EIC2600.

Searches are processed in the order in which they are received. Upon receiving your request, a searcher will contact you to discuss your search. You will be notified again when your search is completed. At that time, you may pick up your search in the EIC. If you prefer, the search will be delivered directly to your office. Deliveries are made twice a day, once in the midmorning and again in the afternoon.

If you have any immediate questions you can contact us at 571-272-4235.

Thank you very much for using the EIC. The text of your request is below.

Your name: **JULIE WATKO**
 Email address: **JULIEANNE.WATKO@USPTO.GOV**
 Employee number: **77602**
 Art Unit: **GROUP ART UNIT 2627**
 Office Location: **KNX 08A75**
 Phone Number: **(571)272-7597**
 Mailbox Number: **knox8A75**

Case serial number: **10788863**
 Class / Subclass(es): **360/244.8**
 Earliest Priority Filing Date: **02/27/2004**
 Format preferred for results: **E-mail**
 Attachments: **No attachment.**
 Search Topic Information:

I am looking for a material, having a high modulus of elasticity (or coefficient of restitution) > 10 GPa and a damping capacity > 0.02 preferably strong enough to support itself, preferably for use in a disk drive (disc drive, hard drive, HDD) head (slider, transducer, pickup) suspension (load beam, gimbal). 1. (Currently Amended) A head suspension assembly, comprising: a beam component having a front end and a rear end; a hinge component near the rear end of the beam component for connecting to an actuation arm; and a gimbal component near the front end of the main beam section for carrying a transducing head; wherein the hinge component comprises a first structural damping material having a modulus of elasticity greater than approximately 10 gigapascals and a damping cap....a...c.jt¥ greater than approximately 0.02 and the gimbal component comprises a second structural damping material having a modulus of elasticity greater than approximately 10 gigapascals and a damping capacity greater than approximately 0.02.
HEADSUSPENSION ASSE~L-Y HAVING AHIGHDAMPING HIGH STIf. EsSCOMPONENT
ABSTRACT OF THE DISCLOSUI~E- A:head suspension assembly for carrying a slider
assembly in a disc drive ~has a beam component :having~a front,end and a rear end, a hinge

12/3/2007

component ~near the rear end of the beam. component for connecting to an actuation means, and a gimbal ,component near the ~front end of the main beam section for carrying a transducing head. At least one Of the hinge component and thegimbal component is made from a structural ,dampifig material :having ~high stiffness and high damping capacity.

Special Instructions and Other Comments:

I will be working at home until approx'ly Saturday, so if you get around to the search before then, please execute without waiting for my reply. After that, I will only be available to discuss on Mondays and Fridays.

10 788 863

PATENT FILES (abstract)

File 344:Chinese Patents Abs Jan 1985-2006/Jan

(c) 2006 European Patent Office

File 347:JAPIO Dec 1976-2007/Jun(Updated 070926)

(c) 2007 JPO & JAPIO

File 350:Derwent WPIX 1963-2007/UD=200775

(c) 2007 The Thomson Corporation

File 371:French Patents 1961-2002/BOPI 200209

(c) 2002 INPI. All rts. reserv.

Set Items Description

S1 639 HEAD(SUSPENSION)(ASSEMBL?

S2 54139 (DISC OR HARD)(3N)DRIVE??

S3 958 SLIDER(SUSPENSION?

S4 2142 BEAM(COMPONENT??

S5 462 HINGE(COMPONENT

S6 15 GIMBAL(COMPONENT??

S7 7 STRUCTURAL(DAMPING)MATERIAL??

S8 25002 HIGH(STIFFNESS OR STIFF

S9 4100 HIGH(DAMPING OR DAMPING(CAPACIT?

S10 414335 HIGH(FREQUENCY)VIBRATION?? OR VIBRATION??

S11 33858 S10(3N)(REDUCE? OR SUBTRACT? OR REDUCT? OR LOWER?)

S12 284 AU=(SASSINE, J? OR SASSINE J? OR BHATTACHARYA, S? OR BHATTACHARYA S? OR HUTCHINSON, A? OR HUTCHINSON A? OR LIMMER, J? OR LIMMER J? OR JOSEPH(2N)SASSINE OR SANDEEPAN(2N)BHATTACHARYA - OR ANDREW(2N)HUTCHINSON OR JOEL(2N)LIMMER)

S13 231 S1 AND S2

S14 17 S13 AND S3

S15 2 S14 AND (S4:S8)

S16 8 S1 AND S11

S17 0 S16 AND (S3 OR S8 OR S9)

S18 8 S16 NOT S14

S19 5 S12 AND S1

Your case

15/3,K/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2007 The Thomson Corporation. All rts. reserv.

0015278493 - Drawing available

WPI ACC NO: 2005-628616/200564

XRPX Acc No: N2005-516139

Disc drive e.g. hard drive, head suspension assembly for computer system, has hinge and gimbal components, where one of components is made from damping material with high stiffness and damping capacity

Patent Assignee: SEAGATE TECHNOLOGY LLC (SEAG-N)

Inventor: BHATTACHARYA S; HUTCHINSON A J; LIMMER J D; SASSINE J H

Patent Family (1 patents, 1 countries)

Patent Application

Number Kind Date Number Kind Date Update

1 of 58

US 20050190502 A1 20050901 US 2004788863 A 20040227 200564 B

Priority Applications (no., kind, date): US 2004788863 A 20040227

Patent Details

Number Kind Lan Pg Dwg Filing Notes
US 20050190502 A1 EN 11 4

Disc drive e.g. hard drive , head suspension assembly for computer system, has hinge and gimbal components , where one of components is made from damping material with high stiffness and damping capacity

Original Titles:

Head suspension assembly having a high damping high stiffness component

Alerting Abstract ...NOVELTY - The assembly has a beam component (30) with a front end and a rear end. A hinge component (34) near the rear end of the beam component connects an actuation unit. A gimbal component (36) near the front end carries a transducing head. One of the hinge component and the gimbal component is made from a structural damping material having high stiffness and high damping capacity. DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for fabricating a vibration resistant head suspension assembly .

...

...ADVANTAGE - One of the hinge and gimbal components is made from structural damping material having high stiffness and high damping capacity, thus reducing vibration resonance without sacrificing overall stiffness of the assembly...

...DESCRIPTION OF DRAWINGS - The drawing shows an air bearing surface plan view of a head suspension assembly .

...

...30 Beam component

...

...34 Hinge component

...

...36 Gimbal component

Title Terms.../Index Terms/Additional Words: STIFF ;

Original Publication Data by Authority

Original Abstracts:

Ahead suspension assembly for carrying a slider assembly in a disc drive has a beam component having a front end and a rear end, a hinge component near the rear end of the beam component for connecting to an actuation means, and a gimbal component near the front end of the main beam section for carrying a transducing head. At least one of the hinge component and the gimbal component is made from a structural damping material having high stiffness and

high damping capacity. >

Claims:

1. A head suspension assembly, comprising: a beam component having a front end and a rear end; a hinge component near the rear end of the beam component for connecting to an actuation means; and a gimbal component near the front end of the main beam section for carrying a transducing head; wherein at least one of the hinge component and the gimbal component is made from a first structural damping material having high stiffness and high damping capacity.

15/3,K/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0015203205 - Drawing available
WPI ACC NO: 2005-553218/200556
XRPX Acc No: N2005-453453

Static torque adjustment method in head suspension assembly of magnetic hard disk drive, involves adjusting static attitude component to desired torque, based on measured static attitude component and determined torsional stiffness

Patent Assignee: ZENG Q (ZENG-I); HITACHI GLOBAL STORAGE TECHNOLOGIES NETH (HITA-N)

Inventor: ZENG Q

Patent Family (2 patents, 1 countries)

Patent Number	Application Kind	Date	Patent Number	Application Kind	Date	Update
US 20050165561	A1	20050728	US 2004763582	A	20040123	200556 B
US 7069156	B2	20060627	US 2004763582	A	20040123	200643 E

Priority Applications (no., kind, date): US 2004763582 A 20040123

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
US 20050165561	A1	EN	10	9		

Static torque adjustment method in head suspension assembly of magnetic hard disk drive, involves adjusting static attitude component to desired torque, based on measured static attitude component and...

Original Titles:

METHOD FOR ADJUSTING THE PITCH AND ROLL STATIC TORQUES IN A DISK DRIVE HEAD SUSPENSION ASSEMBLY

...

...Method for adjusting the pitch and roll static torques in a disk drive head suspension assembly

Alerting Abstract ...NOVELTY - The attitude component torsional stiffness of the head suspension assembly is determined. An adjustment of the static attitude component required to achieve the desired static...

...method for adjusting pitch static torque on slider in head suspension assembly; method for adjusting roll static torque on slider in head suspension assembly.

...

...USE - For adjusting static torque on slider in head suspension assembly of magnetic hard disk drive.

Title Terms.../Index Terms/Additional Words: STIFF

Original Publication Data by Authority

Original Abstracts:

...pitch and roll static torques (PST and RST) on a slider in a disk drive head - suspension assembly (HSA) during manufacturing assures that each HSA is manufactured with acceptable PST and RST values. The method includes measuring...

...pitch and roll static torques (PST and RST) on a slider in a disk drive head - suspension assembly (HSA) during manufacturing assures that each HSA is manufactured with acceptable PST and RST values. The method includes measuring each slider's pitch and...

Claims:

1 A method for adjusting a static torque on a slider in a head - suspension assembly comprising: measuring a static attitude component of the slider; determining the attitude component torsional stiffness of the head - suspension assembly; calculating, from the measured static attitude component and the determined torsional stiffness, the adjustment of the static attitude component required to achieve the...

...claimed is: 1. A method for adjusting a static torque on a slider in a head - suspension assembly comprising: measuring a static attitude component of the slider; determining the attitude component torsional stiffness of the head - suspension assembly by determining the attitude component effective moment-of-inertia of the slider; calculating, from the measured static attitude component and the determined torsional stiffness, the adjustment of the static attitude component required to achieve the desired static torque; and adjusting the static...

?

18/3,K/1 (Item 1 from file: 347)

DIALOG(R)File 347:JAPIO

(c) 2007 JPO & JAPIO. All rts. reserv.

07241389 **Image available**

DISK DEVICE

PUB. NO.: 2002-109840 [JP 2002109840 A]

PUBLISHED: April 12, 2002 (20020412)

INVENTOR(s): KATSUMATA MAKOTO

APPLICANT(s): TOSHIBA CORP

APPL. NO.: 2000-298288 [JP 2000298288]

FILED: September 29, 2000 (20000929)

ABSTRACT

... disk surface, a head moving direction detecting means which detects the moving direction of a head suspension assembly and a shock detecting means which detects radial direction shock components of the assembly by...

... by the shock detecting means. Thus, errors in determining the head position caused by external vibration are reduced .

COPYRIGHT: (C)2002,JPO

18/3,K/2 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0013314359 - Drawing available
WPI ACC NO: 2003-401515/200338
Related WPI Acc No: 2002-730949
XRAM Acc No: C2003-106693
XRPX Acc No: N2003-320207

Multilayer suspension for head gimbal assembly comprises resilient bending section, resilient gimbal section and rigid section formed by partially removing at least part of layers of five-layer structure
Patent Assignee: SAE MAGNETICS HK LTD (SAEM-N); SEA MAGNETICS HK LTD (SEAM-N)

Inventor: SHIRAISHI M

Patent Family (2 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
US 20030007289	A1	20030109	US 2001993497	A	20011127	200338 B
			US 2002229146	A	20020828	
US 6898841	B2	20050531	US 2001993497	A	20011127	200536 E
			US 2002229146	A	20020828	

Priority Applications (no., kind, date): JP 2000397006 A 20001227

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20030007289	A1	EN	14	6	Division of application US 2001993497

US 6898841 B2 EN Division of application US 2001993497

Division of patent US 6636382

Alerting Abstract ...the multilayer suspension and which has head element(s); and a manufacturing method of a head gimbal assembly comprising: preparing a five-layer sheet comprising metal thin plate layers and resin layers laminated...

...the HGA can be extremely improved. Since it is possible to ensure the rigidity, the vibration performance of the suspension and the HGA can be improved. Since the thickness can be reduced, a windage...

18/3,K/3 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0012299925 - Drawing available
WPI ACC NO: 2002-241111/200229

XRPX Acc No: N2002-186237

Disk drive for computer system, has flow controller with streamline flow passages for directing air flow induced by rotation of disk

Patent Assignee: BOUTAGHOU Z (BOUT-I); CHANG Y (CHAN-I); FORBORD K J (FORB-I); HIMES A K (HIME-I); MANGOLD M E (MANG-I); NATH B (NATH-I); RAFAELOF M (RAFA-I); RAO R M (RAOR-I); RYUN S E (RYUN-I); SEAGATE TECHNOLOGY LLC (SEAG-N); XIA S (XIAS-I)

Inventor: BIJOYENDRA N; BOUTAGHOU Z; BOUTAGHOU Z E; CHANG Y; FORBORD K J; HIMES A K; MANGOLD M E; MENACHEM R; NAGANATHAN G; NATH B; RAFAELOF M; RAO R M; RYUN S E; XIA S

Patent Family (11 patents, 7 countries)

Patent Number	Kind	Application Date	Number	Kind	Date	Update
WO 2001097221	A2	20011220	WO 2001US19051	A	20010614	200229 B
US 20020075591	A1	20020620	US 2000211553	P	20000614	200244 E
		US 2000232036	P	20000912		
		US 2001263629	P	20010123		
		US 2001286483	P	20010426		
		US 2001881547	A	20010614		
US 20020110026	A1	20020815	US 2000232036	P	20000912	200256 E
		US 2001953097	A	20010912		
GB 2379321	A	20030305	WO 2001US19051	A	20010614	200319 E
		GB 200227476	A	20021125		
DE 10196308	T	20031120	DE 10196308	A	20010614	200378 E
		WO 2001US19051	A	20010614		
KR 2003070529	A	20030830	KR 2002716935	A	20021212	200406 E
GB 2379321	B	20040421	WO 2001US19051	A	20010614	200427 E
		GB 200227476	A	20010614		
JP 2004515867	W	20040527	WO 2001US19051	A	20010614	200435 E
		JP 2002511334	A	20010614		
CN 1526137	A	20040901	CN 2001811229	A	20010614	200479 E
		WO 2001US19051	A	20010614		
US 6989959	B2	20060124	US 2000211553	P	20000614	200607 E
		US 2000232036	P	20000912		
		US 2001263629	P	20010123		
		US 2001286483	P	20010426		
		US 2001881547	A	20010614		
KR 510162	B	20050826	WO 2001US19051	A	20010614	200662 E
		KR 2002716935	A	20021212		

Priority Applications (no., kind, date): US 2000211553 P 20000614; US 2000232036 P 20000912; US 2001263629 P 20010123; US 2001286483 P 20010426; US 2001881547 A 20010614; US 2001953097 A 20010912

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
WO 2001097221	A2	EN	24	13		
National Designated States, Original: CN DE GB JP KR SG						
US 20020075591	A1	EN			Related to Provisional	US 2000211553
					Related to Provisional	US 2000232036
					Related to Provisional	US 2001263629
					Related to Provisional	US 2001286483
US 20020110026	A1	EN			Related to Provisional	US 2000232036
GB 2379321	A	EN			PCT Application	WO 2001US19051
					Based on OPI patent	WO 2001097221
DE 10196308	T	DE			PCT Application	WO 2001US19051

Based on OPI patent WO 2001097221
 GB 2379321 B EN PCT Application WO 2001US19051
 Based on OPI patent WO 2001097221
 JP 2004515867 W JA 62 PCT Application WO 2001US19051
 Based on OPI patent WO 2001097221
 CN 1526137 A ZH PCT Application WO 2001US19051
 US 6989959 B2 EN Related to Provisional US 2000211553
 Related to Provisional US 2000232036
 Related to Provisional US 2001263629
 Related to Provisional US 2001286483
 KR 510162 B KO PCT Application WO 2001US19051
 Previously issued patent KR 2003070529

Based on OPI patent WO 2001097221

Original Titles:

... Head suspension assembly with fins

Original Publication Data by Authority

Original Abstracts:

A flow control device for a data storage system to **reduce** flow induced **vibration**. The flow control device includes a plurality of streamline flow passages to reduce turbulent flow in a flow field...

...discs is directed through the plurality of streamline flow passages to reduce turbulence to limit **excitation** or **vibration** of the head and suspension components...

...A **head suspension assembly** including fins. The fins are coupled to the **suspension assembly** and supported along the air flow path or in the flow field to provide...

...A flow control device for a data storage system to **reduce** flow induced **vibration**. The flow control device includes a plurality of streamline flow passages to **reduce** **turbulent** flow in a flow field along a disc surface. Thus, air flow induced by rotation...

...A flow control device (120) for a data storage system to **reduce** flow induced **vibration**. The flow control device (120) includes a plurality of streamline flow passages (122) to **reduce** **turbulent** flow in a flow field along a disc surface. Thus, air flow induced by rotation of data discs...

Claims:

...What is claimed is: **1**. A **head suspension assembly** comprising: a gimbal assembly having opposed first and second surfaces and side edges and including opposed gimbal arms; an air bearing slider coupled to the gimbal assembly and having a **leading edge**, a trailing edge and opposed side edges and a first surface and a second opposed...

18/3,K/4 (Item 3 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
 (c) 2007 The Thomson Corporation. All rts. reserv.

0012246998 - Drawing available

WPI ACC NO: 2002-186790/200224

Method for reducing vibration of head gimbal assembly and head actuation assembly

Patent Assignee: OBREGON F (OBRE-I); SAMSUNG ELECTRONICS CO LTD (SMSU); SCURA J E (SCUR-I); TRAN L (TRAN-I)

Inventor: OBREGON F; SCURA J E; TRAN L

Patent Family (3 patents, 2 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
KR 2001095211	A	20011103	KR 200117188	A	20010331	200224 B
US 6549376	B1	20030415	US 2000540246	A	20000331	200329 E
KR 400039	B	20030929	KR 200117188	A	20010331	200416 E

Priority Applications (no., kind, date): US 2000540246 A 20000331

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
KR 2001095211	A	KO	1	10		
KR 400039	B	KO				Previously issued patent KR 2001095211 ...reducing vibration of a head gimbal assembly and a head actuation assembly are provided to reduce vibration generated from a disc head slider by improving a head gimbal assembly and a head...

Original Publication Data by Authority

Original Abstracts:

A head suspension assembly comprising a visco - elastic coupling between a load beam dimple or protrusion and a suspension flexure to which a slider is rigidly coupled. The damping material is selected for a low static modulus, which **reduces mechanical vibration by absorbing kinetic energy** and releasing the energy as heat. The gimbaling function of the suspension is not significantly...

18/3,K/5 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0010629915 - Drawing available

WPI ACC NO: 2001-236655/200125

Related WPI Acc No: 2007-678504

XRPX Acc No: N2001-169297

Head suspension assembly for read/write head of disk drive with reduced vibration for extra high speed access disks

Patent Assignee: FUJITSU LTD (FUIT)

Inventor: HIRAOKA S

Patent Family (10 patents, 29 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
EP 1049075	A2	20001102	EP 1999310016	A	19991213	200125 B
CN 1272668	A	20001108	CN 2000101601	A	20000119	200125 E
JP 2000315366	A	20001114	JP 1999125204	A	19990430	200125 E
KR 2000067842	A	20001125	KR 199964265	A	19991229	200130 E
JP 2001076452	A	20010323	JP 2000201058	A	20000703	200133 E
US 6704164	B1	20040309	US 1999459115	A	19991210	200418 E

CN 1129117 C 20031126 CN 2000101601 A 20000119 200565 E
 KR 2006104969 A 20061009 KR 200687819 A 20060912 200705 E
 JP 3909167 B2 20070425 JP 1999125204 A 19990430 200730 E
 KR 662060 B1 20061227 KR 199964265 A 19991229 200765 E

Priority Applications (no., kind, date): JP 1999125204 A 19990430; JP
 1999187230 A 19990701

Patent Details

Number Kind Lan Pg Dwg Filing Notes

EP 1049075 A2 EN 15 14

Regional Designated States, Original: AL AT BE CH CY DE DK ES FI FR GB GR

IE IT LI LT LU LV MC MK NL PT RO SE SI

JP 2000315366 A JA 6

KR 2000067842 A KO 23

JP 2001076452 A JA 9

JP 3909167 B2 JA 8 Previously issued patent JP 2000315366

KR 662060 B1 KO Previously issued patent KR 2000067842

**Head suspension assembly for read/write head of disk drive with
 reduced vibration for extra high speed access disks**

Alerting Abstract ...ADVANTAGE - Reduces vibrations of head slider...
**...DESCRIPTION OF DRAWINGS - The drawing shows a plan view of the head
 suspension assembly .**

18/3,K/6 (Item 5 from file: 350)
 DIALOG(R)File 350:Derwent WPIX
 (c) 2007 The Thomson Corporation. All rts. reserv.

0008916459

WPI ACC NO: 1998-466924/199840

XRAM Acc No: C1998-141553

XRPX Acc No: N1998-363755

**Disc drive head suspension load beam - includes gaps filled with
 viscoelastic epoxy damping material to reduce the amplitude of resonant
 frequency vibrations.**

Patent Assignee: HUTCHINSON TECHNOLOGY INC (HUTC-N)

Inventor: TANGREN J H

Patent Family (1 patents, 1 countries)

Patent Application

Number Kind Date Number Kind Date Update

US 5796553 A 19980818 US 1997829222 A 19970331 199840 B

Priority Applications (no., kind, date): US 1997829222 A 19970331

Patent Details

Number Kind Lan Pg Dwg Filing Notes

US 5796553 A EN 12 5

**Alerting Abstract ...A magnetic head suspension assembly (HSA)
 comprises a load beam(12) having a mounting region (14) at its proximal end**

...

Documentation Abstract

A magnetic head suspension assembly (HSA) comprises a load beam(12) having a mounting region (14) at its proximal end...

Original Publication Data by Authority

Original Abstracts:

...load beam and filled with damping material. The damper filled gaps reduce the amplitude of resonant frequency vibrations in the disk drive suspension.

18/3,K/7 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPLX

(c) 2007 The Thomson Corporation. All rts. reserv.

0006047960 - Drawing available

WPI ACC NO: 1992-284852/199234

XRPX Acc No: N1992-217989

Magnetic head suspension assembly for drive of rigid disk - has layer of damping material sandwiched between two sheets so that damping material is integral with entire spring load beam

Patent Assignee: HUTCHINSON TECHNOLOGY INC (HUTC-N)

Inventor: BLAESER D J; WOLTER R R

Patent Family (5 patents, 18 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
WO 1992013345	A1	19920806	WO 1992US393	A	19920116	199234 B
US 5187625	A	19930216	US 1991644336	A	19910122	199309 E
EP 568632	A1	19931110	EP 1992905240	A	19920116	199345 E
			WO 1992US393	A	19920116	
JP 6504646	W	19940526	JP 1992504758	A	19920116	199425 E
			WO 1992US393	A	19920116	
EP 568632	A4	19931215	US 1995485122	A	19950607	199528 E

Priority Applications (no., kind, date): US 1991644336 A 19910122

Patent Details

Number Kind Lan Pg Dwg Filing Notes

WO 1992013345 A1 EN 23 12

National Designated States,Original: CA JP KR

Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IT LU MC NL SE

US 5187625 A EN 9 12

EP 568632 A1 EN 2 1 PCT Application WO 1992US393

Based on OPI patent WO 1992013345

Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IT LI LU

NL SE

JP 6504646 W JA 1 1 PCT Application WO 1992US393

Based on OPI patent WO 1992013345

EP 568632 A4 EN

Magnetic head suspension assembly for drive of rigid disk...

Equivalent Alerting Abstract ...ADVANTAGE - Amplitude of all resonant modes of vibration reduced .

Original Publication Data by Authority

Original Abstracts:

A head suspension assembly (10) for use with drives for rigid disks which incorporates a layer of damping material (13) throughout the entire structure of the suspension to reduce the amplitude of all resonant modes of vibration .

...

...A head suspension assembly for use with drives for rigid disks which incorporates a layer of damping material throughout the entire structure of the suspension to reduce the amplitude of all resonant modes of vibration .

...

...A head suspension assembly (10) for use with drives for rigid disks which incorporates a layer of damping material (13) throughout the entire structure of the suspension to reduce the amplitude of all

18/3,K/8 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0003154820

WPI ACC NO: 1984-251729/198441

XRAM Acc No: C1984-106158

XRPX Acc No: N1984-188023

Vibration damped magnetic head suspension assembly - has viscoelastic pref. polyacrylic polymer layer on beam under constraining member

Patent Assignee: IBM CORP (IBM)

Inventor: PAL G S; SNYDER C G

Patent Family (4 patents, 4 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
EP 121057	A	19841010	EP 1984101276	A	19840208	198441 B
US 4760478	A	19880726	US 1983480997	A	19830330	198832 E
			US 1986883201	A	19860708	
EP 121057	B	19900613	EP 1984101276	A	19840208	199024 E
DE 3482517	G	19900719			199030	E

Priority Applications (no., kind, date): US 1983480997 A 19830330; US 1986883201 A 19860708

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
EP 121057	A	EN	15	16		
Regional Designated States,Original: DE FR GB						
EP 121057	B	EN				
Regional Designated States,Original: DE FR GB						

Vibration damped magnetic head suspension assembly -

Original Titles:

...Visco-elastically damped magnetic head suspension assembly

Equivalent Alerting Abstract ...Head support arm for a disc file has a resilient magnetic head suspension assembly at one end and has a transducing head support at its other end. A layer...

Original Publication Data by Authority

Original Abstracts:

...support arm for a disk file comprises a relatively rigid arm structure and a magnetic head suspension assembly fixed at one end to the head support arm having means on the other end...

Claims:

...sandwiched between the load beam and a constraining member (36) so that the amplitude of vibration is reduced due to absorption of shear energy in the layer of viscoelastic material...

?

19/3,K/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2007 The Thomson Corporation. All rts. reserv.

0015278493 - Drawing available

WPI ACC NO: 2005-628616/200564

XRPX Acc No: N2005-516139

Disc drive e.g. hard drive, head suspension assembly for computer system, has hinge and gimbal components, where one of components is made from damping material with high stiffness and damping capacity

Patent Assignee: SEAGATE TECHNOLOGY LLC (SEAG-N)

Inventor: BHATTACHARYA S ; HUTCHINSON A J ; LIMMER J D ; SASSINE J H

Patent Family (1 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 20050190502	A1	20050901	US 2004788863	A	20040227	200564 B

Priority Applications (no., kind, date): US 2004788863 A 20040227

Patent Details

Number	Kind	Lang	Pg	Dwg	Filing	Notes
US 20050190502	A1	EN	11	4		

Disc drive e.g. hard drive, head suspension assembly for computer system, has hinge and gimbal components, where one of components is made from...

Original Titles:

Head suspension assembly having a high damping high stiffness component

Inventor: BHATTACHARYA S ...

... HUTCHINSON A J ...

... LIMMER J D ...

... SASSINE J H

Alerting Abstract DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for fabricating a vibration resistant **head suspension assembly** .

...

...DESCRIPTION OF DRAWINGS - The drawing shows an air bearing surface plan view of a **head suspension assembly** .

Original Publication Data by Authority

Inventor name & address:

Sassine, Joseph H ...

... Bhattacharya, Sandeepan ...

... Hutchinson, Andrew J ...

... Limmer, Joel D

Claims:

1. A **head suspension assembly** , comprising: a **beam component** having a front end and a rear end;a hinge component near the rear end...

19/3,K/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0014243525 - Drawing available
WPI ACC NO: 2004-429565/200440
XRAM Acc No: C2004-160823
XRPX Acc No: N2004-339494

Fabrication of a suspension useful for forming information storage systems involves etching to form a bonding area on a first side of the suspension and etching a forward dam near a forward region of the suspension

Patent Assignee: MORGAN CHASE BANK JP (MORG-N)

Inventor: **BHATTACHARYA S ; NARAYAN S H; RUSSELL K M; SEGAR R L**

Patent Family (1 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 6738226	B1	20040518	US 2000176516	P	20000113	200440 B
			US 2000631530	A	20000803	

Priority Applications (no., kind, date): US 2000176516 P 20000113; US 2000631530 A 20000803

Patent Details

Number Kind Lan Pg Dwg Filing Notes

US 6738226 B1 EN 11 10 Related to Provisional US 2000176516

Inventor: **BHATTACHARYA S ...**

Alerting Abstract ...for minimizing the bonding of a flex circuit inter connect to the suspension; anda head gimbal assembly for a disc drive
...

Original Publication Data by Authority

Inventor name & address:
Bhattacharya, Sandeepan ...

19/3,K/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0013882290 - Drawing available
WPI ACC NO: 2004-061201/200406
XRPX Acc No: N2004-049597

Data storage device, has load beam with one surface facing towards storage medium and another surface secured to base plate surface, and interconnect secured to load beam surface

Patent Assignee: SEAGATE TECHNOLOGY LLC (SEAG-N)

Inventor: **BHATTACHARYA S ; HUTCHINSON A J**

Patent Family (1 patents, 1 countries)

Patent	Application
Number	Kind Date Number Kind Date Update
US 20030231432	A1 20031218 US 2002389816 P 20020618 200406 B
	US 2003428555 A 20030502

Priority Applications (no., kind, date): US 2002389816 P 20020618; US 2003428555 A 20030502

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
US 20030231432	A1	EN	14	3	Related to Provisional	US 2002389816

Inventor: **BHATTACHARYA S ...**

... HUTCHINSON A J

Alerting Abstract DESCRIPTION - An INDEPENDENT CLAIM is also included for a head suspension assembly for a disc drive...

Original Publication Data by Authority

Inventor name & address:
Bhattacharya, Sandeepan ...

... Hutchinson, Andrew John

19/3,K/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0013085759 - Drawing available

WPI ACC NO: 2003-166377/200316

XRPX Acc No: N2003-131446

Disk drive has suspension comprising composite stiffener adhered to base, the stiffener being made of composite material having higher stiffness-to-weight ratio than base material

Patent Assignee: BHATTACHARYA S (BHAT-I); HUHA M A (HUHA-I); SCHULZ K J (SCHU-I); SEAGATE TECHNOLOGY LLC (SEAG-N)

Inventor: BHATTACHARYA S ; HUHA M A; SCHULZ K J

Patent Family (6 patents, 98 countries)

Patent Number	Kind	Application Date	Number	Kind	Date	Update
US 20020176209	A1	20021128	US 2001293286	P	20010523	200316 B
		US 200283054	A	20020226		
WO 2002095737	A1	20021128	WO 2002US6006	A	20020226	200316 E
AU 2002245540	A1	20021203	AU 2002245540	A	20020226	200452 E
CN 1507619	A	20040623	CN 2002809760	A	20020226	200461 E
US 6977798	B2	20051220	US 200283054	A	20020226	200601 E
CN 1288629	C	20061206	CN 2002809760	A	20020226	200735 E

Priority Applications (no., kind, date): US 2001293286 P 20010523; US 200283054 A 20020226

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
--------	------	-----	----	-----	--------	-------

US 20020176209	A1	EN	8	8	Related to Provisional	US 2001293286
----------------	----	----	---	---	------------------------	---------------

WO 2002095737	A1	EN				
---------------	----	----	--	--	--	--

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

Regional Designated States,Original: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW AU 2002245540 A1 EN Based on OPI patent WO 2002095737

Inventor: BHATTACHARYA S ...

Alerting Abstract ...USE - Hard disk drive with head suspension assembly .

Original Publication Data by Authority

Inventor name & address:

... BHATTACHARYA S ...

... BHATTACHARYA S ...

... Bhattacharya, Sandeepan ...

... Bhattacharya, Sandeepan ...

... BHATTACHARYA, Sandeepan

19/3,K/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2007 The Thomson Corporation. All rts. reserv.

0012264590 - Drawing available
WPI ACC NO: 2002-204784/200226
XRPX Acc No: N2002-155795

Head suspension resonance frequency increasing method for magnetic hard disk drive, involves attaching gimbal to suspender to provide high stiffness-to-mass ratio without increasing spring rate

Patent Assignee: SEAGATE TECHNOLOGY LLC (SEAG-N)

Inventor: BHATTACHARYA S ; QUALEY D G; SCHULZ K J; ZHOU H

Patent Family (2 patents, 1 countries)

Patent Number	Application Kind	Date	Number	Kind	Date	Update
US 20010048574	A1	20011206	US 1999151690	P	19990831	200226 B
			US 2001812192	A	20010319	
US 6765759	B2	20040720	US 2000207638	P	20000525	200448 E
			US 2001812192	A	20010319	

Priority Applications (no., kind, date): US 1999151690 P 19990831; US 2000207638 P 20000525; US 2001812192 A 20010319

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
US 20010048574	A1	EN	12	6	Related to Provisional	US 1999151690
US 6765759	B2	EN			Related to Provisional	US 2000207638

Inventor: BHATTACHARYA S ...

Alerting Abstract ...of the gimbal provide a higher stiffness-to-mass ratio without increasing spring rate of head suspension assembly (200), by which the suspension resonance frequency of the assembly is increased corresponding to bandwidth...

...Improved head suspension assembly; Disk drive

...DESCRIPTION OF DRAWINGS - The figure shows an exploded view of head suspension assembly .

...200 Head suspension assembly

Original Publication Data by Authority

Inventor name & address:
Bhattacharya, Sandeepan ...

... Bhattacharya, Sandeepan

Original Abstracts:

A system and a method for increasing suspension resonance frequencies of a head suspension assembly of a disc drive includes, in one example embodiment, attaching a base plate to an actuator arm assembly of

...radius provides a higher stiffness-to-mass ratio without increasing the spring rate of the head suspension assembly to increase suspension resonance frequencies of the head suspension assembly to fall outside a bandwidth of a servo drive to reduce off-track motion of the head suspension assembly during track follow - and -seek operations of the disc drive...

...A system and a method for increasing suspension resonance frequencies of a head suspension assembly of a disc drive includes, in one example embodiment , attaching a base plate to an actuator arm assembly of the disc drive such that...

...radius provides a higher stiffness-to-mass ratio without increasing the spring rate of the head suspension assembly to increase suspension resonance frequencies of the head suspension assembly to fall outside a bandwidth of a servo drive to reduce off-track motion of the head suspension assembly during track follow-and-seek operations of the disc drive.

Claims:

...is: **1**. A method to increase suspension resonance frequencies without increasing spring rate of a head suspension assembly of a disc drive, comprising: (a) attaching a base plate to an actuator arm assembly such that the base plate including the actuator arm...

...area provide a higher stiffness-to-mass ratio without increasing the spring rate of the head suspension assembly such that the suspension resonance frequencies of the head suspension assembly are increased to fall outside a bandwidth of a servo drive to reduce off-track motion of the head suspension assembly during track follow-and-seek operations of the disc drive.

...

...What is claimed is: 1. A head suspension assembly comprising: a base plate; a two-piece suspension member, having a first piece and a second piece, wherein the first piece is attached to the base plate ; and a gimbal, wherein the gimbal is attached to the first piece and the second piece
?

PATENT FILES (full text)

File 324:German Patents Fulltext 1967-200745

(c) 2007 Univentio

File 348:EUROPEAN PATENTS 1978-2007/ 200744

(c) 2007 European Patent Office

File 349:PCT FULLTEXT 1979-2007/UB=20071122UT=20071115

(c) 2007 WIPO/Thomson

Set	Items	Description
S1	192	HEAD(SUSPENSION)(ASSEMBL?
S2	60621	(DISC OR HARD)(3N)DRIVE??
S3	515	SLIDER(SUSPENSION?
S4	1253	BEAM(COMPONENT??
S5	225	HINGE(COMPONENT

S6 10 GIMBAL()COMPONENT??
 S7 3 STRUCTURAL()DAMPING()MATERIAL??
 S8 69652 HIGH()STIFFNESS OR STIFF
 S9 1500 HIGH()DAMPING OR DAMPING()CAPACIT?
 S10 229731 HIGH()FREQUENCY()VIBRATION?? OR VIBRATION??
 S11 15553 S10(3N)(REDUCE? OR SUBTRACT? OR REDUCT? OR LOWER?)
 S12 156 AU=(SASSINE, J? OR SASSINE J? OR BHATTACHARYA, S? OR BHATTACHARYA S? OR HUTCHINSON, A? OR HUTCHINSON A? OR LIMMER, J? OR LIMMER J? OR JOSEPH(2N)SASSINE OR SANDEEPAN(2N)BHATTACHARYA - OR ANDREW(2N)HUTCHINSON OR JOEL(2N)LIMMER)
 S13 94 S1 AND S2
 S14 10 S13 AND S3
 S15 0 S14(3N)(S4:S8)
 S16 0 S14(3N)S11
 S17 10 S14 AND IC=G11B?
 S18 12 S1 AND S11
 S19 1 S18(3N)(S3 OR S8 OR S9)
 S20 0 S12(3N)S1
 ?

17/3,K/1 (Item 1 from file: 348)
 DIALOG(R)File 348:EUROPEAN PATENTS
 (c) 2007 European Patent Office. All rts. reserv.

02219490

Suspension with multi-layered integrated conductor trace array for optimized electrical parameters

Aufhangung mit integrierter Leiterbahnanordnung aus mehreren Schichten zum Optimieren elektrischer Parameter

Suspension avec reseau de trace multicouche conductrice integre pour parametres electriques optimises

PATENT ASSIGNEE:

MAXTOR CORPORATION, (4945770), 500 McCarthy Boulevard, Milpitas, CA 95035, (US), (Applicant designated States: all)

INVENTOR:

Balakrishnan, Arun, 4683 Rousillon Avenue, Fremont, CA 94555, (US)

LEGAL REPRESENTATIVE:

Charig, Raymond Julian (79692), Eric Potter Clarkson LLP Park View House 58 The Ropewalk, Nottingham NG1 5DD, (GB)

PATENT (CC, No, Kind, Date): EP 1770689 A1 070404 (Basic)

APPLICATION (CC, No, Date): EP 2006076974 970925;

PRIORITY (CC, No, Date): US 720833 961003

DESIGNATED STATES: DE; FR; GB; IT; NL

RELATED PARENT NUMBER(S) - PN (AN):

EP 834867 (EP 97307519)

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

G11B-0005/48 A I F B 20060101 20070219 H EP

G11B-0021/16 A I L B 20060101 20070219 H EP

ABSTRACT WORD COUNT: 111

NOTE:

Figure number on first page: 9

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200714	1170
SPEC A	(English)	200714	5473
Total word count - document A			6643
Total word count - document B			0
Total word count - documents A + B			6643

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

G11B-0005/48 A I F B 20060101 20070219 H EP...

... G11B-0021/16 A I L B 20060101 20070219 H EP

...SPECIFICATION electrical impedance characteristics of a trace conductor array formed integrally with a flexure of a head suspension assembly . More particularly, the present invention relates to an integrated suspension and conductor structure wherein the...

...supporting and electrically connecting to read/write head elements carried on a slider in a hard disk drive .
A suspension assembly in accordance with principles of the present invention includes a flexure having...

...In an alternative preferred form, an integrated load beam assembly supports a read/write head/ slider assembly adjacent to a storage medium and electrically interconnects the head to read/write circuitry. The...

...assembly comprises a generally planar conductive member extending to proximity of the read/write head/ slider assembly ; a first electrical insulation layer disposed on the conductive member; at least one electrical trace...

...structure.

In another preferred form, an integrated flexure/conductor structure supports a read/write head/ slider assembly adjacent to a storage medium and electrically interconnects the head to read/write circuitry. In...

...a generally planar conductive flexure member having a gimbal for supporting the read/write head/ slider assembly . A first electrical insulation layer is formed on the flexure member. First and second electrical...

...In a further preferred form, an integrated flexure/conductor structure supports a read/write head/ slider assembly adjacent to a storage medium and electrically interconnects the head to read/write circuitry. The...

...a generally planar conductive flexure member having a gimbal for supporting the read/write head/ slider assembly . A first electrical insulation layer is disposed on the flexure member. First and second electrical...

...1 presents a diagrammatic top plan view of a head/disk assembly (HDA) of

a hard disk drive 30. The hard disk drive 30 employs at least one load beam assembly 10 having a flexure 14 including a...

...CLAIMS A1

1. An integrated load beam assembly for supporting a read/write head/ slider assembly adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...assembly comprising: a generally planar conductive member extending to proximity of the read/write head/ slider assembly ;

a first electrical insulation layer disposed on the conductive member;

at least one electrical trace...

...ground plane structure.

4. An integrated load beam assembly for supporting a read/write head/ slider assembly adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...assembly comprising: a generally planar conductive member extending to proximity of the read/write head/ slider assembly ;

a first electrical insulation layer disposed on the conductive member;

a first electrical trace path...

...planar conductive member comprises a flexure including a gimbal for positioning the read/write head/ slider assembly in close proximity to the storage medium.

6. The integrated load beam assembly set forth...

...electrical trace path.

13. An integrated flexure/conductor structure for supporting a read/write head/ slider assembly adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...a generally planar conductive flexure member having a gimbal for supporting the read/write head/ slider assembly ;

a first electrical insulation layer disposed on the flexure member;
first and second electrical trace...

...electrical trace path.

14. An integrated flexure/conductor structure for supporting a read/write head/ slider assembly adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...a generally planar conductive flexure member having a gimbal for supporting the read/write head/ slider assembly ;

a first electrical insulation layer disposed on the flexure member;

first and second electrical trace...

17/3,K/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2007 European Patent Office. All rts. reserv.

01279103

**RATIO METHOD FOR MEASUREMENT OF MR READ HEAD RESISTANCE
AUF DER ERMITTLUNG EINES VERHALTNISSES BASIERENDES VERFAHREN ZUR
MESSUNG**

**DES WIDERSTANDS EINES MR LESEKOPFES
TECHNIQUE DES RATIOS POUR LA MESURE DE LA RESISTANCE DES TETES DE
LECTURE**

MAGNETIQUES

PATENT ASSIGNEE:

International Business Machines Corporation, (200128), New Orchard Road,
Armonk, NY 10504, (US), (Proprietor designated states: all)

INVENTOR:

TRETTER, Larry, LeeRoy, 9258 E. 42nd Street, Tucson, AZ 85730, (US)

MALMBERG, James, Ernest, 9641 E. Baker, Tucson, AZ 85748, (US)

LEGAL REPRESENTATIVE:

Litherland, David Peter (75472), IBM United Kingdom Ltd., MP 110, Hursley
Park, Winchester, Hampshire SO21 2JN, (GB)

PATENT (CC, No, Kind, Date): EP 1214708 A1 020619 (Basic)

EP 1214708 B1 071107

WO 2001020599 010322

APPLICATION (CC, No, Date): EP 2000958830 000908; WO 2000GB3445 000908

PRIORITY (CC, No, Date): US 395147 990914

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS (V7): **G11B-005/02** ; **G11B-005/012** ; G01R-027/14

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

G11B-0005/02 A I F B 20060101 20010328 H EP

G11B-0005/012 A I L B 20060101 20010328 H EP

G01R-0027/14 A I L B 20060101 20010328 H EP

NOTE:

No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
----------------	----------	--------	------------

CLAIMS B	(English)	200745	507
----------	-----------	--------	-----

CLAIMS B	(German)	200745	523
----------	----------	--------	-----

CLAIMS B	(French)	200745	611
----------	----------	--------	-----

SPEC B	(English)	200745	3016
--------	-----------	--------	------

Total word count - document A	0
-------------------------------	---

Total word count - document B	4657
-------------------------------	------

Total word count - documents A + B	4657
------------------------------------	------

INTERNATIONAL PATENT CLASS (V7): **G11B-005/02** ...

... **G11B-005/012**

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

G11B-0005/02 A I F B 20060101 20010328 H EP...

... **G11B-0005/012** A I L B 20060101 20010328 H EP

...SPECIFICATION For example, the resistance measurement must be completed at the MR head wafer level, the slider assembly level, or by inconvenient probing methods at the HeadStackAssembly (HSA) level (after the actuator has...

...information for display 320. Peripheral devices such as non-volatile storage 314, will include a hard disk drive or tape drive employing one or more magneto resistive read heads, and keyboard/pointing device...

...base 404; a bias supply source control circuit 405; a shaft 406; a plurality of head suspension assemblies 407; a plurality of MR read heads 408; a cover 409; and a circuit card...

...CLAIMS actuator arms and a hub assembly coupled to the actuator shaft, and

a plurality of head suspension assemblies each coupled to one of said plurality of actuator arms, each head suspension assembly comprising an MR head (408), and

an arm electronics unit situated in close proximity to...

17/3,K/3 (Item 3 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2007 European Patent Office. All rts. reserv.

00968525

Suspension with integrated conductor trace array having optimized cross-sectional high frequency current density

Aufhangung mit integrierter Leiterbahnanordnung mit optimierter Hochfrequenz-Querschnittsströmdichte

Suspension avec réseau de trace multicouche conductrice integre avec section transversale optimisee pour des hautes densitees de courants a hautes frequences

PATENT ASSIGNEE:

QUANTUM CORPORATION, (567671), 500 McCarthy Boulevard, Milpitas California 95035, (US), (applicant designated states: DE;FR;GB;IT;NL)

INVENTOR:

Balakrishnan, Arun, 4683 Rousillon Avenue, Fremont, California 94555, (US)

LEGAL REPRESENTATIVE:

Charig, Raymond Julian (79692), Eric Potter Clarkson, Park View House, 58 The Ropewalk, Nottingham NG1 5DD, (GB)

PATENT (CC, No, Kind, Date): EP 878791 A1 981118 (Basic)

APPLICATION (CC, No, Date): EP 98303348 980429;

PRIORITY (CC, No, Date): US 855809 970512

DESIGNATED STATES: DE; FR; GB; IT; NL

INTERNATIONAL PATENT CLASS (V7): **G11B-005/48**

ABSTRACT WORD COUNT: 77

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9847	906
SPEC A	(English)	9847	5161
Total word count - document A			6067
Total word count - document B			0
Total word count - documents A + B			6067

INTERNATIONAL PATENT CLASS (V7): G11B-005/48

...SPECIFICATION for optimizing cross-sectional high frequency current density in a trace conductor array within a **head suspension assembly**. More particularly, the present invention relates to an integrated suspension and longitudinally-segmented conductor trace...object of the present invention is to provide a segmented trace interconnect array for a **head suspension assembly** of a disk drive in which the suspension trace segments have effective cross-sectional widths...

...high operating frequencies.

In summary an integrated load beam assembly supports a read/write head/**slider assembly** adjacent to a storage medium such as a rotating data storage disk within a disk...

...assembly includes a generally planar conductive member extending to proximity of the read/write head/**slider assembly**; a first electrical insulation layer disposed on the conductive member; and at least a first data storage device such as a **hard disk drive**. In this aspect, the trace interconnect array includes a support substrate for supporting a thin...

...1 presents a diagrammatic top plan view of a head/disk assembly (HDA) of a **hard disk drive 30**. The **hard disk drive 30** employs at least one load beam assembly 10 having a flexure 14 including a...3, 1996 by Young, for: "Multi-Trace Transmission Lines for R/W Head Interconnect in **Hard Disk Drive**", the disclosure thereof being incorporated herein by reference.

In accordance with principles of the present...conductor trace interconnect array in combination with a flexure structure and head gimbal for a **hard disk drive**, it should be clear to those skilled in the art that the present invention may...

CLAIMS 1. An integrated load beam assembly for supporting a read/write head/**slider assembly** adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...assembly comprising:

- a generally planar conductive member extending to proximity of the read/write head/**slider assembly**;
- a first electrical insulation layer disposed on the conductive member;
- a first electrical trace path...

...conductor segments.

7. The integrated load beam assembly set forth in claim 1 within a **hard disk drive** including at least one rotating data storage disk as the storage medium and a voice coil actuator for positioning the read/write head/**slider assembly** at data storage locations defined

on a storage surface of the data storage disk.

8...

...planar conductive member comprises a flexure forming a gimbal for mounting the read/write head/ slider assembly relative to a moving surface of a data storage disk forming the storage medium.

10...

17/3,K/4 (Item 4 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2007 European Patent Office. All rts. reserv.

00914717

Head suspension with self-shielding integrated conductor trace array

Kopfaufhangung mit selbst-abgeschirmter integrierter Leiterbahnanordnung

Suspension de tete avec reseau de trace conductrice integre autoblinde

PATENT ASSIGNEE:

QUANTUM CORPORATION, (567673), 501 Sycamore Drive, Milpitas, CA 95035,
(US), (Proprietor designated states: all)

INVENTOR:

Balakrishnan, Arun, 4683 Rousillon Avenue, Fremont, California 94555,
(US)

LEGAL REPRESENTATIVE:

Goodman, Christopher et al (31122), Eric Potter Clarkson, Park View
House, 58 The Ropewalk, Nottingham NG1 5DD, (GB)

PATENT (CC, No, Kind, Date): EP 834868 A1 980408 (Basic)

EP 834868 B1 040204

APPLICATION (CC, No, Date): EP 97307756 971001;

PRIORITY (CC, No, Date): US 724978 961003

DESIGNATED STATES: DE; FR; GB; IT; NL

INTERNATIONAL PATENT CLASS (V7): G11B-005/48

ABSTRACT WORD COUNT: 59

NOTE:

Figure number on first page: 3A/3B

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
----------------	----------	--------	------------

CLAIMS A	(English)	199815	843
----------	-----------	--------	-----

CLAIMS B	(English)	200406	557
----------	-----------	--------	-----

CLAIMS B	(German)	200406	493
----------	----------	--------	-----

CLAIMS B	(French)	200406	636
----------	----------	--------	-----

SPEC A	(English)	199815	4020
--------	-----------	--------	------

SPEC B	(English)	200406	3974
--------	-----------	--------	------

Total word count - document A	4864
-------------------------------	------

Total word count - document B	5660
-------------------------------	------

Total word count - documents A + B	10524
------------------------------------	-------

INTERNATIONAL PATENT CLASS (V7): G11B-005/48

...SPECIFICATION service loop pairs of a trace conductor array formed integrally with a flexure of a head suspension assembly from unwanted interference. More particularly, the present invention relates to an integrated suspension and conductor...

...art.

A self-shielding integrated flexure/conductor structure supports a multi-element read/write head/ slider assembly adjacent to a storage medium and electrically interconnects a read element of the head to...

...1 presents a diagrammatic top plan view of a head/disk assembly (HDA) of a hard disk drive 30. The hard disk drive 30 employs at least one load beam assembly 10 having a flexure 14 including a...

...SPECIFICATION service loop pairs of a trace conductor array formed integrally with a flexure of a head suspension assembly from unwanted interference. More particularly, the present invention relates to an integrated suspension and conductor...

...invention a self-shielding integrated flexure/conductor structure supports a multi-element read/write head/ slider assembly adjacent to a storage medium and electrically interconnects a read element of the head to...

...1 presents a diagrammatic top plan view of a head/disk assembly (HDA) of a hard disk drive 30. The hard disk drive 30 employs at least one load beam assembly 10 having a flexure 14 including a...

...CLAIMS A self-shielding integrated flexure/conductor structure for supporting a multi-element read/write head/ slider assembly adjacent to a storage medium and for electrically interconnecting a read element of the head...

...CLAIMS shielding integrated flexure/conductor structure (14, 16) for supporting a multi-element read/write head/ slider assembly (20) adjacent to a storage medium (36) and for electrically interconnecting a read element (70)...

17/3,K/5 (Item 5 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2007 European Patent Office. All rts. reserv.

00914663

Suspension with multi-layered integrated conductor trace array for optimized electrical parameters

Aufhangung mit integrierter Leiterbahnanordnung aus mehreren Schichten zum Optimieren elektrischer Parameter

Suspension avec réseau de trace multicouche conductrice integre pour parametres electriques optimises

PATENT ASSIGNEE:

MAXTOR CORPORATION, (4945770), 500 McCarthy Boulevard, Milpitas, CA 95035, (US), (Proprietor designated states: all)

INVENTOR:

Balakrishnan, Arun, 4683 Rousillon Avenue, Fremont, California 94555, (US)

LEGAL REPRESENTATIVE:

Charig, Raymond Julian et al (79692), Eric Potter Clarkson LLP Park View House 58 The Ropewalk, Nottingham NG1 5DD, (GB)

PATENT (CC, No, Kind, Date): EP 834867 A1 980408 (Basic)

EP 834867 B1 070502

APPLICATION (CC, No, Date): EP 97307519 970925;

PRIORITY (CC, No, Date): US 720833 961003

DESIGNATED STATES: DE; FR; GB; IT; NL
RELATED DIVISIONAL NUMBER(S) - PN (AN):
EP 1770689 (EP 2006076974)

INTERNATIONAL PATENT CLASS (V7): **G11B-005/48**
INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):
IPC + Level Value Position Status Version Action Source Office:
G11B-0005/48 A I F B 20060101 19980122 H EP
G11B-0021/16 A I L B 20060101 19980122 H EP

ABSTRACT WORD COUNT: 111

NOTE:

Figure number on first page: 3B/3C

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200718	461
CLAIMS B	(German)	200718	421
CLAIMS B	(French)	200718	529
SPEC B	(English)	200718	5403
Total word count - document A			0
Total word count - document B			6814
Total word count - documents A + B			6814

INTERNATIONAL PATENT CLASS (V7): **G11B-005/48**
INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):
IPC + Level Value Position Status Version Action Source Office:
G11B-0005/48 A I F B 20060101 19980122 H EP...

... **G11B-0021/16** A I L B 20060101 19980122 H EP

...SPECIFICATION electrical impedance characteristics of a trace conductor array formed integrally with a flexure of a **head suspension assembly**. More particularly, the present invention relates to an integrated suspension and conductor structure wherein the...

...supporting and electrically connecting to read/write head elements carried on a slider in a **hard disk drive**.
A suspension assembly in accordance with principles of the present invention includes a flexure having...

...In an alternative preferred form, an integrated load beam assembly supports a read/write head/ **slider assembly** adjacent to a storage medium and electrically interconnects the head to read/write circuitry. The...

...assembly comprises a generally planar conductive member extending to proximity of the read/write head/ **slider assembly**; a first electrical insulation layer disposed on the conductive member; at least one electrical trace...

...structure.

In another preferred form, an integrated flexure/conductor structure supports a read/write head/ **slider assembly** adjacent to a storage medium and electrically interconnects the head to read/write circuitry. In...

...a generally planar conductive flexure member having a gimbal for supporting the read/write head/ slider assembly . A first electrical insulation layer is formed on the flexure member. First and second electrical...

...In a further preferred form, an integrated flexure/conductor structure supports a read/write head/ slider assembly adjacent to a storage medium and electrically interconnects the head to read/write circuitry. The...

...a generally planar conductive flexure member having a gimbal for supporting the read/write head/ slider assembly . A first electrical insulation layer is disposed on the flexure member. First and second electrical...

...1 presents a diagrammatic top plan view of a head/disk assembly (HDA) of a hard disk drive 30. The hard disk drive 30 employs at least one load beam assembly 10 having a flexure 14 including a...

...CLAIMS B1

1. An integrated load beam assembly (10) for supporting a read/write head/ slider assembly (20) adjacent to a storage medium (36) and for electrically interconnecting the head to read...

...a generally planar conductive member (14) extending to the proximity of the read/write head/ slider assembly (20);

a first electrical insulation layer (25) disposed on the conductive member;

a first electrical...

...conductive member (14) comprises a flexure including a gimbal for positioning the read/write head/ slider assembly (20) in close proximity to the storage medium (36).

3. The integrated load beam assembly...

17/3,K/6 (Item 1 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

(c) 2007 WIPO/Thomson. All rts. reserv.

01008803 **Image available**

**SYSTEM FOR MEASURING AND ADJUSTING PITCH AND ROLL IN A SUSPENSION
SYSTEME DE MESURE ET DE REGLAGE D'INCLINAISON LONGITUDINALE ET
LATERALE**

DANS UNE SUSPENSION

Patent Applicant/Assignee:

ATS AUTOMATION TOOLING SYSTEMS INC, 250 Royal Oak Road, Cambridge,
Ontario N3H 4R6, CA, CA (Residence), CA (Nationality), (For all
designated states except: US)

Patent Applicant/Inventor:

LONG Wong Sow, 290 C, #13-356, Bukit Batok East Avenue 3, Singapore
650290, SG, SG (Residence), MY (Nationality), (Designated only for: US)
QIANG Yang Yi, Guang-Yan Rd., Shanghai 200072, CN, CN (Residence), CN
(Nationality), (Designated only for: US)

HONG Choong Wee, ATS AnA Mechatronics Singapore Pte Ltd., 38A Jalan
Peminpin #04-01, Wisdom Industrial Building, Singapore 577179, SG, SG
(Residence), -- (Nationality), (Designated only for: US)

Legal Representative:

KINSMAN Anne L (et al) (agent), Borden Ladner Gervais LLP, World Exchange
Plaza, 100 Queen Street, Suite 1100, Ottawa, Ontario K1P 1J9, CA,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200338815 A1 20030508 (WO 0338815)

Application: WO 2002CA1673 20021101 (PCT/WO CA0201673)

Priority Application: US 2001330893 20011102

Designated States:

(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI
SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 5391

Main International Patent Class (v7): **G11B-005/48**

International Patent Class (v7): **G11B-005/60**

Fulltext Availability:

Detailed Description

Detailed Description

... correct the roll and pitch in a suspension.

io Background of the Invention

Magnetic recording **hard drives** include components enabling data to be
read from or written to a rotating magnetic disk. More specifically,
hard drives utilize head gimbal assemblies (HGAs), also known as
head suspension assemblies (HSAs) to support transducers (sliders)
in close proximity to the rotating disk surfaces. As a...

...to herein as suspension head assemblies or suspensions, these devices
include an air bearing head **slider assembly** mounted to a suspension
system. The ...12a that provides the attachment point of the suspension
10 to the arm of a **hard drive**. The central load beam 16 has a spring
16a for connecting the load beam 16...

17/3,K/7 (Item 2 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

(c) 2007 WIPO/Thomson. All rts. reserv.

00787100 **Image available**

RATIO METHOD FOR MEASUREMENT OF MR READ HEAD RESISTANCE
TECHNIQUE DES RATIOS POUR LA MESURE DE LA RESISTANCE DES TETES DE
LECTURE

MAGNETIQUES

Patent Applicant/Assignee:

INTERNATIONAL BUSINESS MACHINES CORPORATION, New Orchard Road, Armonk, NY
10504, US, US (Residence), US (Nationality)
IBM UNITED KINGDOM LIMITED, P.O. Box 41, North Harbour, Portsmouth,
Hampshire PO6 3AU, GB, GB (Residence), GB (Nationality), (Designated
only for: MC)

Inventor(s):

TRETTER Larry LeeRoy, 9258 E. 42nd Street, Tucson, AZ 85730, US,
MALMBERG James Ernest, 9641 E. Baker, Tucson, AZ 85748, US,

Legal Representative:

DAVIES Simon Robert (agent), IBM United Kingdom Limited, Intellectual
Property Department, Hursley Park, Winchester, Hampshire SO21 2JN, GB,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200120599 A1 20010322 (WO 0120599)

Application: WO 2000GB3445 20000908 (PCT/WO GB0003445)

Priority Application: US 99395147 19990914

Designated States:

(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE
ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT
LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM
TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 4588

Main International Patent Class (v7): **G11B-005/02**

International Patent Class (v7): **G11B-005/012 ...**

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... For example, the resistance measurement
must be completed at the MR head wafer level, the slider assembly
level,
or by inconvenient probing methods at the HeadStackAssembly (HSA) level
(after the actuator has...actuator arms and a hub
assembly coupled to the actuator shaft, and a plurality of head
suspension
assemblies each coupled to one of said plurality of actuator arms, each

head suspension assembly comprising an MR head, and an arm
electronics
unit situated in close proximity to said...information
for display 320. Peripheral devices such as non-volatile storage 314,
will include a hard disk drive or tape drive employing one or more
magneto resistive read heads, and keyboard/pointing device...base 404; a
bias supply
source control circuit 405; a shaft 406; a plurality of head
suspension
assemblies 407; a plurality of MR read heads 408; a cover 409; and a

circuit card...

Claim

... actuator arms and a hub
assembly coupled to the actuator shaft, and
a plurality of head suspension assemblies each coupled to one
of said plurality of actuator arms, each head suspension assembly
comprising an MR head, and
an arm electronics unit situated in close proximity to said...

17/3,K/8 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2007 WIPO/Thomson. All rts. reserv.

00565155 **Image available**

SUBAMBIENT PRESSURE SLIDER PATIN A PRESSION NEGATIVE

Patent Applicant/Assignee:

SAE MAGNETICS (H K) LTD,

Inventor(s):

CHA Ellis T,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200028528 A2 20000518 (WO 0028528)

Application: WO 99IB1876 19991027 (PCT/WO IB9901876)

Priority Application: US 98186212 19981103

Designated States:

(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)

CN JP

Publication Language: English

Fulltext Word Count: 5510

Main International Patent Class (v7): **G11B-021/21**

International Patent Class (v7): **G11B-005/60**

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... multiple level surface configuration for a subambient pressure air
bearing slider.

Background of the Invention

Hard disk drives are common information storage devices essentially
consisting of a series of rotatable disks that are...

...is relatively constant.

Additionally, changes in flying height may result in unintended contact
between the slider assembly and the magnetic rotating disk. Sliders
are generally considered to be either direct contacting, pseudo...

Claim

... structures is less than one atmosphere over all diameters of said
moving medium.

7 A head suspension assembly comprising:
a flexure;
a slider coupled to said flexure, said slider including
a slider body...

...and second rails and disposed adjacent to one of said inside rail edges.

8 The head suspension assembly of claim 3 wherein said slider
further
includes a second secondary structure having a height...

...and second rails and disposed adjacent to another of said inside rail
edges.

9 The head suspension assembly of claim 7 wherein when said slider
is
positioned over a moving medium, a pressure at said first secondary
structure is less than one atmosphere.

10 The head suspension assembly of claim 9 wherein the pressure at
said first secondary structure is less than one atmosphere over all
diameters of said moving medium.

11 The head suspension assembly of claim 8 wherein when said slider
is
positioned over a moving medium, pressure at said first and secondary
structures is less than one atmosphere.

12 The head suspension assembly of claim 11 wherein the pressure
at said first and secondary structures is less...

17/3,K/9 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2007 WIPO/Thomson. All rts. reserv.

00443755 **Image available**

SUSPENSION WITH BIAXIALLY SHIELDED CONDUCTOR TRACE ARRAY
SUSPENSION A RESEAU DE CONDUCTEURS TRACES A BLINDAGE BIAXIAL

Patent Applicant/Assignee:

QUANTUM CORPORATION,

Inventor(s):

AKIN William R Jr,
BALAKRISHNAN Arun,
WILLIAMS Stephen P,
CARPENTER Christopher M,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9834219 A2 19980806

Application: WO 98US1197 19980120 (PCT/WO US9801197)

Priority Application: US 97785570 19970121

Designated States:

(Protection type is "patent" unless otherwise stated - for applications
prior to 2004)

AU CA CN JP KR SG AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 5559

Main International Patent Class (v7): **G11B-005/54**

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... to structure and method for electrically shielding a conductor trace array formed integrally with a **head suspension assembly** for use in a magnetic **hard disk drive** .

5

Background of the Invention

Contemporary magnetic **hard disk drives** typically include a rotating rigid storage disk and a head positioner for positioning a data...for improved trace conductor shielding in conductor trace arrays used in head mounting structures of **hard disk drives** .

Summary of the Invention with Objects

A general object of the present invention is to...

...for supporting, electrically connecting to read/write head elements carried on a slider in a **hard disk drive** .

A suspension assembly in accordance with principles of the present invention includes a load beam and a flexure for supporting a read/write head/ **slider assembly** adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry assembly of a **hard disk drive** which includes an actuator having a suspension assembly with a shielded multi-layer conductive trace...

...presents a diagrammatic top plan view of a head/disk

6

assembly (HDA) of a **hard disk drive** 30. The **hard disk drive** 30 employs at least one load beam assembly 10 including a load beam 12 carrying...grounded through the E-block and actuator structure 40 to the base 32 of the **hard disk drive** . The thin film shield layer 72 is provided to shield the traces 60 and 62...on October 3, 1996, for "Multi-trace Transmission Lines for R/ W Head Interconnect in **Hard Disk Drive** ", the disclosure thereof being incorporated herein by reference, multiple traces may be provided in a...

Claim

... An integrated load beam assembly including a load beam for supporting a read/write head/ **slider assembly** adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...assembly comprising: a generally planar conductive member extending to proximity of the read/write head/ **slider assembly** ;
a first electrical insulation layer formed on the conductive member;
a first electrical signal trace...

...connected to the load beam and including a gimbal for positioning the read/write head/ **slider assembly** in close proximity to the storage medium.

3 The integrated load beam assembly set forth...

...1 5 1 1. An integrated load beam assembly for supporting a read/write head/ slider assembly adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...assembly comprising:

a generally planar conductive member extending to proximity of the read/write

head/ slider assembly ;

a first electrical insulation layer disposed on the conductive member; at least one electrical trace...

...by the shield.

14 An integrated flexure/conductor structure for supporting a read/write head/ slider assembly adjacent to a storage medium and for electrically interconnecting the head to read/write circuitry...

...a generally planar conductive flexure member having a gimbal for supporting the

read/write head/ slider assembly ;

13

a first electrical insulation layer disposed on the flexure member; first and second electrical...

17/3,K/10 (Item 5 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

(c) 2007 WIPO/Thomson. All rts. reserv.

00430021 **Image available**

HEAD SUSPENSION WITH SELF-SHIELDING "TWISTED" INTEGRATED CONDUCTOR TRACE

ARRAY

SUSPENSION DE TETE AVEC RESEAU DE TRACES CONDUCTEURS INTEGRES A FILS TORSADES ET A AUTO-BLINDAGE

Patent Applicant/Assignee:

QUANTUM CORPORATION,

Inventor(s):

CARPENTER Christopher M,

AKIN William R Jr,

WILLIAMS Stephen P,

BALAKRISHNAN Arun,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9820485 A1 19980514

Application: WO 97US20311 19971106 (PCT/WO US9720311)

Priority Application: US 96746065 19961106

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AU CA CN JP KR SG AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 5551

Main International Patent Class (v7): G11B-005/48

International Patent Class (v7): **G11B-05:55**

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... No. 08/692,394, entitled: "Multi-Trace Transmission Lines for R/W Head Interconnect in **Hard Disk Drive**", filed on October 3, 1996. The disclosures of the foregoing commonly assigned applications are incorporated...

...service loop pairs of a trace conductor array formed integrally with a flexure of a **head suspension assembly** from unwanted interference. More particularly, the present invention relates to an integrated suspension and conductor...path, multi-layer trace array interconnecting a flying head and an electronic circuit within a **hard disk drive**.

In accordance with principles of the present invention, an integrated flexure/conductor structure is provided for supporting a multi-element read/write head/ **slider assembly** adjacent to a storage medium and for electrically interconnecting a read element of the head...I presents a diagrammatic top plan view of a head/disk assembly (HDA) of a **hard disk drive 30**. The **hard disk drive 30** employs at least one load beam assembly IO having a flexure 14 including a...

Claim

1 An integrated flexure/conductor structure for supporting a multi-element read/write head/ **slider assembly** adjacent to a storage medium and for electrically interconnecting a read element of the head...

?

19/3,K/1 (Item 1 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

(c) 2007 European Patent Office. All rts. reserv.

00363643

A transducer head suspension assembly.

Tragervorrichtung fur einen Wandlerkopf.

Assemblage avec suspension de tete pour transducteur.

PATENT ASSIGNEE:

International Business Machines Corporation, (200120), Old Orchard Road, Armonk, N.Y. 10504, (US), (applicant designated states: DE;FR;GB)

INVENTOR:

Aoyagi, Akihiko, 1239-8 Kamiwada, Yamato-shi Kanagawa-ken, (JP)

Endo, Tatsuya, 2571-20B Ishikawa, Fujisawa-shi Kanagawa-ken, (JP)

Terashima, Hiroshi, 1546-315 Kameino, Fujisawa-shi Kanagawa-ken, (JP)

LEGAL REPRESENTATIVE:

Moss, Robert Douglas (34141), IBM United Kingdom Limited Intellectual Property Department Hursley Park, Winchester Hampshire SO21 2JN, (GB)

PATENT (CC, No, Kind, Date): EP 338698 A2 891025 (Basic)

EP 338698 A3 900124

EP 338698 B1 931110

APPLICATION (CC, No, Date): EP 89303364 890405;

PRIORITY (CC, No, Date): JP 8898477 880422

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS (V7): G11B-005/60; G11B-005/596;

ABSTRACT WORD COUNT: 95

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	310
CLAIMS B	(German)	EPBBF1	268
CLAIMS B	(French)	EPBBF1	312
SPEC B	(English)	EPBBF1	2249
Total word count - document A			0
Total word count - document B			3139
Total word count - documents A + B			3139

...SPECIFICATION perspective view and a side view, respectively, of that prior art head suspension assembly. The head suspension assembly 40 consists of a slider 1 having a coil for writing and reading data relative to a magnetic disk 30...

...the load beam 3 on an accessing arm 9.

The slider is held by the head suspension assembly so that the slider can travel stably over the disk at a constant distance therefrom. In particular, the slider must...

?

SCI TECH FILES

File 2:INSPEC 1898-2007/Nov W2
(c) 2007 Institution of Electrical Engineers

File 6:NTIS 1964-2007/Dec W2
(c) 2007 NTIS, Intl Cpyrght All Rights Res

File 8:Ei Compendex(R) 1884-2007/Nov W3
(c) 2007 Elsevier Eng. Info. Inc.

File 34:SciSearch(R) Cited Ref Sci 1990-2007/Nov W4
(c) 2007 The Thomson Corp

File 35:Dissertation Abs Online 1861-2007/Jul
(c) 2007 ProQuest Info&Learning

File 56:Computer and Information Systems Abstracts 1966-2007/Oct
(c) 2007 CSA.

File 57:Electronics & Communications Abstracts 1966-2007/Sep
(c) 2007 CSA.

File 65:Inside Conferences 1993-2007/Nov 27
(c) 2007 BLDSC all rts. reserv.

File 95:TEME-Technology & Management 1989-2007/Nov W3
(c) 2007 FIZ TECHNIK

File 99:Wilson Appl. Sci & Tech Abs 1983-2007/Sep
(c) 2007 The HW Wilson Co.

File 144:Pascal 1973-2007/Nov W2
(c) 2007 INIST/CNRS

File 239:Mathsci 1940-2007/Nov
(c) 2007 American Mathematical Society

File 256:TecInfoSource 82-2007/Jan
(c) 2007 Info.Sources Inc

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 2006 The Thomson Corp

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13

(c) 2002 The Gale Group
 File 603:Newspaper Abstracts 1984-1988
 (c)2001 ProQuest Info&Learning
 File 483:Newspaper Abs Daily 1986-2007/Nov 25
 (c) 2007 ProQuest Info&Learning
 File 248:PIRA 1975-2007/Oct W3
 (c) 2007 Pira International

Set	Items	Description
S1	80	HEAD()SUSPENSION?()ASSEMBL?
S2	25827	(DISC OR HARD)(3N)DRIVE??
S3	48	SLIDER()ASSEMBL?
S4	844	BEAM()COMPONENT??
S5	10	HINGE()COMPONENT
S6	6	GIMBAL()COMPONENT??
S7	1	STRUCTURAL()DAMPING()MATERIAL??
S8	55519	HIGH()STIFFNESS OR STIFF
S9	7317	HIGH()DAMPING OR DAMPING()CAPACIT?
S10	938963	HIGH()FREQUENCY()VIBRATION?? OR VIBRATION??
S11	19668	S10(3N)(REDUCE? OR SUBTRACT? OR REDUCT? OR LOWER?)
S12	11399	AU=(SASSINE, J? OR SASSINE J? OR BHATTACHARYA, S? OR BHATTACHARYA S? OR HUTCHINSON, A? OR HUTCHINSON A? OR LIMMER, J? OR LIMMER J? OR JOSEPH(2N)SASSINE OR SANDEEPAN(2N)BHATTACHARYA - OR ANDREW(2N)HUTCHINSON OR JOEL(2N)LIMMER)
S13	25	S1 AND S2
S14	0	S13 AND S3
S15	0	S13 AND (S4:S8)
S16	0	S14 AND S11
S17	23	RD S13 (unique items)
S18	21	S17 NOT PY>2004
S19	2	S1 AND S11
S20	0	S19 AND S3
S21	0	S12 AND S1
		?

BUSINESS FILES

File 9:Business & Industry(R) Jul/1994-2007/Nov 19
 (c) 2007 The Gale Group
 File 15:ABI/Inform(R) 1971-2007/Nov 26
 (c) 2007 ProQuest Info&Learning
 File 16:Gale Group PROMT(R) 1990-2007/Nov 22
 (c) 2007 The Gale Group
 File 20:Dialog Global Reporter 1997-2007/Nov 27
 (c) 2007 Dialog
 File 47:Gale Group Magazine DB(TM) 1959-2007/Nov 09
 (c) 2007 The Gale group
 File 75:TGG Management Contents(R) 86-2007/Nov W1
 (c) 2007 The Gale Group
 File 80:TGG Aerospace/Def.Mkts(R) 1982-2007/Nov 15
 (c) 2007 The Gale Group
 File 88:Gale Group Business A.R.T.S. 1976-2007/Nov 14
 (c) 2007 The Gale Group
 File 98:General Sci Abs 1984-2007/Nov
 (c) 2007 The HW Wilson Co.
 File 112:UBM Industry News 1998-2004/Jan 27

(c) 2004 United Business Media
 File 141:Readers Guide 1983-2007/Sep
 (c) 2007 The HW Wilson Co
 File 160:Gale Group PROMT(R) 1972-1989
 (c) 1999 The Gale Group
 File 275:Gale Group Computer DB(TM) 1983-2007/Nov 21
 (c) 2007 The Gale Group
 File 264:DIALOG Defense Newsletters 1989-2007/Sep 21
 (c) 2007 Dialog
 File 484:Periodical Abs Plustext 1986-2007/Nov W3
 (c) 2007 ProQuest
 File 553:Wilson Bus. Abs. 1982-2007/Oct
 (c) 2007 The HW Wilson Co
 File 570:Gale Group MARS(R) 1984-2007/Nov 21
 (c) 2007 The Gale Group
 File 608:KR/T Bus.News. 1992-2007/Nov 27
 (c)2007 Knight Ridder/Tribune Bus News
 File 620:EIU:Viewswire 2007/Nov 27
 (c) 2007 Economist Intelligence Unit
 File 613:PR Newswire 1999-2007/Nov 26
 (c) 2007 PR Newswire Association Inc
 File 621:Gale Group New Prod. Annou.(R) 1985-2007/Nov 16
 (c) 2007 The Gale Group
 File 623:Business Week 1985-2007/Nov 27
 (c) 2007 The McGraw-Hill Companies Inc
 File 624:McGraw-Hill Publications 1985-2007/Nov 26
 (c) 2007 McGraw-Hill Co. Inc
 File 635:Business Dateline(R) 1985-2007/Nov 27
 (c) 2007 ProQuest Info&Learning
 File 636:Gale Group Newsletter DB(TM) 1987-2007/Nov 20
 (c) 2007 The Gale Group
 File 647:CMP Computer Fulltext 1988-2007/Nov W3
 (c) 2007 CMP Media, LLC
 File 696:DIALOG Telecom. Newsletters 1995-2007/Nov 26
 (c) 2007 Dialog
 File 674:Computer News Fulltext 1989-2006/Sep W1
 (c) 2006 IDG Communications
 File 810:Business Wire 1986-1999/Feb 28
 (c) 1999 Business Wire
 File 813:PR Newswire 1987-1999/Apr 30
 (c) 1999 PR Newswire Association Inc

Set	Items	Description
S1	29	HEAD()SUSPENSION()ASSEMBL?
S2	456103	(DISC OR HARD)(3N)DRIVE??
S3	34	SLIDER()ASSEMBL?
S4	110	BEAM()COMPONENT??
S5	13	HINGE()COMPONENT
S6	7	GIMBAL()COMPONENT??
S7	2	STRUCTURAL()DAMPING()MATERIAL??
S8	301673	HIGH()STIFFNESS OR STIFF
S9	510	HIGH()DAMPING OR DAMPING()CAPACIT?
S10	182258	HIGH()FREQUENCY()VIBRATION?? OR VIBRATION??
S11	12598	S10(3N)(REDUCE? OR SUBTRACT? OR REDUCT? OR LOWER?)
S12	1151	AU=(SASSINE, J? OR SASSINE J? OR BHATTACHARYA, S? OR BHATTACHARYA S? OR HUTCHINSON, A? OR HUTCHINSON A? OR LIMMER, J? OR

LIMMER J? OR JOSEPH(2N)SASSINE OR SANDEEPAN(2N)BHATTACHARYA -
OR ANDREW(2N)HUTCHINSON OR JOEL(2N)LIMMER)

S13 15 S1(3N)S2
S14 0 S13(3N)S3
S15 0 S13(3N)(S4:S8)
S16 0 S13(3N)S11
S17 10 RD S13 (unique items)
S18 8 S17 NOT PY>2004
S19 0 S1(3N)S11
S20 26 S2(3N)S11
S21 0 S20(3N)(S3 OR S8 OR S9)
S22 26 S20 NOT S18
S23 15 S22 NOT PY>2004
S24 11 RD (unique items)
S25 0 S12(3N)S1
?

18/3,K/1 (Item 1 from file: 9)
DIALOG(R)File 9:Business & Industry(R)
(c) 2007 The Gale Group. All rts. reserv.

01967073 Supplier Number: 25458082 (USE FORMAT 7 OR 9 FOR FULLTEXT)

ROGERS CORP & MITSUI CHEMICALS FORM PLS JOINT VENTURE
(Rogers (US) and Mitsui Chemicals (Japan) have formed 50:50 JV firm,
Polyimide Laminate Systems (US), to make laminate for making read/write
head suspension assemblies in hard disk drives)

AsiaPulse News, p n/a

October 07, 1999

DOCUMENT TYPE: Custom Wire (Southern & Eastern Asia)

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 679

...(50:50 JV firm, Polyimide Laminate Systems (US), to make laminate for
making read/write head suspension assemblies in hard disk drives
)

ABSTRACT:

...laminate, comprising stainless steel, polyimide and copper, to be used
for producing the read/write head suspension assemblies in hard
disk drives (HDDs). These TSA (TM) Trace Suspension Assemblies are
produced by Hutchison Technology Inc (Hutchison, MN...

TEXT:

...PLS will manufacture a specialty flexible circuit board laminate used
for making the read/write head suspension assemblies in high
performance, hard disk drives (HDD's). These suspension assemblies,
produced by Hutchinson Technology, Inc., (Nasdaq: HTCH) of Hutchinson,
Minnesota...

18/3,K/2 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2007 The Gale Group. All rts. reserv.

07377872 Supplier Number: 59997676 (USE FORMAT 7 FOR FULLTEXT)
MITSUI CHEMICALS, INC.(agreement with Rogers Corp.)(Brief Article)
Japan-U.S. Business Report, n362, pNA
Nov, 1999
Language: English Record Type: Fulltext
Article Type: Brief Article
Document Type: Newsletter; Trade
Word Count: 159

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

...in an agreement to make a flexible circuit board laminate used in the read/write head suspension assemblies of cutting-edge hard disk drives . Equally owned POLYIMIDE LAMINATE SYSTEMS LLC will build a factory in Chandler, Arizona to produce...

18/3,K/3 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2007 The Gale Group. All rts. reserv.

06701745 Supplier Number: 56031525 (USE FORMAT 7 FOR FULLTEXT)
Rogers Corporation & Mitsui Chemicals, Inc. Form Joint Venture.
PR Newswire, p1196
Oct 6, 1999
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 673

... PLS will manufacture a specialty flexible circuit board laminate used for making the read/write head suspension assemblies in high performance, hard disk drives (HDD's). These suspension assemblies, produced by Hutchinson Technology, Inc., (Nasdaq: HTCH) of Hutchinson, Minnesota...

18/3,K/4 (Item 1 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
(c) 2007 Dialog. All rts. reserv.

07750469 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Rogers Corp & Mitsui Chemicals Inc form joint venture
CHEMICAL BUSINESS NEWSBASE (PRESS RELEASE)
October 14, 1999
JOURNAL CODE: FPRR LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 139

... Laminate will manufacture a speciality flexible circuit board laminate used for making the read/write head suspension assemblies in high performance, hard disk drives .

18/3,K/5 (Item 2 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
(c) 2007 Dialog. All rts. reserv.

07733670 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Mitsui Chemicals and Rogers Corporation form joint venture
MAINICHI PRESS RELEASE SERVICE / ENGLISH SERVICE
October 13, 1999
JOURNAL CODE: FPRS LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 667

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... PLS will manufacture a specialty flexible circuit board laminate used for making the read/write head suspension assemblies in high performance, hard disk drives (HDD's.) These suspension assemblies, produced by Hutchinson Technology, Inc., (Nasdaq :HTCH) of Hutchinson, Minnesota...

18/3,K/6 (Item 3 from file: 20)
DIALOG(R)File 20:Dialog Global Reporter
(c) 2007 Dialog. All rts. reserv.

07628270 (USE FORMAT 7 OR 9 FOR FULLTEXT)
ASIANET SUMMARY FOR THURSDAY, OCTOBER 7, 1999
ASIA PULSE
October 07, 1999
JOURNAL CODE: WAPL LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 477

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... Systems, would manufacture a specialty flexible circuit board laminate used for making the read/write head suspension assemblies in high performance hard disk drives .

The company said PLS would be located in a new plant to be constructed in...

18/3,K/7 (Item 1 from file: 613)
DIALOG(R)File 613:PR Newswire
(c) 2007 PR Newswire Association Inc. All rts. reserv.

00260882 20000207NEM078 (USE FORMAT 7 FOR FULLTEXT)
Rogers Announces Record 1999 Results
PR Newswire
Monday, February 7, 2000 16:31 EST
JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
DOCUMENT TYPE: NEWSWIRE
WORD COUNT: 1,429

...will eventually manufacture a specialty flexible circuit board laminate used for making the read/write head suspension assemblies in high performance hard disk drives . These Trace Suspension Assemblies (TSA) are produced by Hutchinson Technology, Inc. (HTI). This laminate has...

18/3,K/8 (Item 1 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2007 The Gale Group. All rts. reserv.

04521805 Supplier Number: 58417014 (USE FORMAT 7 FOR FULLTEXT)
ELECTRONIC POLYMERS : Rogers, Mitsui in Arizona.
Electronic Materials Update, v13, n12, pNA
Dec 19, 1999
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 395

(USE FORMAT 7 FOR FULLTEXT)
TEXT:

...board laminate. PLS' first customer is Hutchenson Technology, Inc.
(HTI), a manufacturer of read/write head suspension assemblies in
high-performance, hard disk drives .
?

18/3,K/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2007 Institution of Electrical Engineers. All rts. reserv.

09690462

Title: Adopting Taguchi method on head suspension assembly for mobile hard disk drives
Author(s): Takahashi, H.; Kojima, Y.; Kanemura, T.; Nakamura, S.
Author Affiliation: Hitachi Global Storage Technol., Kanagawa, Japan
Conference Title: Asia-Pacific Magnetic Recording Conference 2004. Digest of APMRC 2004 (IEEE Cat. No. 04EX942) p.2 pp.
Publisher: IEEE, Piscataway, NJ, USA
Publication Date: 2004 Country of Publication: USA 150 pp.
ISBN: 0 7803 8717 1 Material Identity Number: XX-2005-01945
U.S. Copyright Clearance Center Code: 0-7803-8717-1/04/\$20.00
Conference Title: Asia-Pacific Magnetic Recording Conference 2004. Digest of APMRC 2004
Conference Date: 16-19 Aug. 2004 Conference Location: Seoul, South Korea
Language: English
Subfile: B C E
Copyright 2005, IEE

Title: Adopting Taguchi method on head suspension assembly for mobile hard disk drives
Abstract: Taguchi method was applied for designing head suspension assembly for mobile hard disk drives (HDDs). Operational shock resistance and positioning accuracy are very important. Control factors of suspension shape...
...Descriptors: disc drives ;
...Identifiers: head suspension assembly design...

...mobile hard disk drives ;

18/3,K/2 (Item 2 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

09690434

Title: Design and development of milliactuator embedded suspension for dual stage system in hard disk drives

Author(s): Eo-Jin Hong; Joon-Hyun Yoon; No-Cheol Park; Hyun-Seok Yang; Young-Pil Park

Author Affiliation: Center for Inf. Storage Device, Yonsei Univ., Seoul, South Korea

Conference Title: Asia-Pacific Magnetic Recording Conference 2004. Digest of APMRC 2004 (IEEE Cat. No. 04EX942) p.2 pp.

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2004 Country of Publication: USA 150 pp.

ISBN: 0 7803 8717 1 Material Identity Number: XX-2005-01945

U.S. Copyright Clearance Center Code: 0 7803 8717 1/2004/\$20.00

Conference Title: Asia-Pacific Magnetic Recording Conference 2004. Digest of APMRC 2004

Conference Date: 16-19 Aug. 2004 Conference Location: Seoul, South Korea

Language: English

Subfile: B E

Copyright 2005, IEE

Title: Design and development of milliactuator embedded suspension for dual stage system in hard disk drives

...Abstract: have suggested new milliactuator based on the shear mode of piezoelectric elements to drive the head suspension assembly. The initial model introduced is the APMRC 2002, and now we improve that model. The...

...Descriptors: disc drives ;

...Identifiers: hard disk drives ; ...

... head suspension assembly ;

18/3,K/3 (Item 3 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

09276026 INSPEC Abstract Number: B2005-03-3120B-012, C2005-03-5320C-015

Title: Topology optimization of head suspension assemblies for suppressing head lift-off

Author(s): Lau, G.K.; Du, H.

Author Affiliation: Sch. of Mech. & Production Eng., Nanyang Technol. Univ., Singapore

Journal: Microsystem Technologies vol.10, no.8-9 p.671-9

Publisher: Springer-Verlag

Publication Date: Nov. 2004 Country of Publication: Germany

CODEN: MCTCEF ISSN: 0946-7076

SICI: 0946-7076(200411)10:8/9L.671:TOHS;1-9

Material Identity Number: F257-2004-007

DOI: 10.1007/S00542-004-0484-2

Language: English
Subfile: B C
Copyright 2005, IEE

Title: Topology optimization of head suspension assemblies for suppressing head lift-off

Descriptors: disc drives ;

...Identifiers: head suspension assembly ;

18/3,K/4 (Item 4 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

08946707 INSPEC Abstract Number: B2004-06-0260-029, C2004-06-1180-032

Title: Optimal suspension design for femto sliders

Author(s): Shengkai Yu; Bo Liu

Author Affiliation: Data Storage Inst., Singapore, Singapore

Conference Title: Digest of INTERMAG 2003. International Magnetics

Conference (Cat. No.03CH37401) p.AB-05

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2003 Country of Publication: USA xii+690 pp.

ISBN: 0 7803 7647 1 Material Identity Number: XX-2003-02910

U.S. Copyright Clearance Center Code: 0-7803-7647-1/03/\$30.00

Conference Title: Digests of INTERMAG 2003. International Magnetics

Conference

Conference Sponsor: Magnetics Soc. IEEE

Conference Date: 28 March-3 April 2003 Conference Location: Boston, MA, USA

Language: English

Subfile: B C

Copyright 2004, IEE

Abstract: In this paper, to meet the performance of femto sliders, an optimal design of the head suspension assembly has been carried out by using multi-objective topology optimization.

Descriptors: disc drives ;

...Identifiers: head suspension assembly ;

18/3,K/5 (Item 5 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

08571511 INSPEC Abstract Number: C2003-05-5320C-010

Title: Influence of the meniscus force for contact recording head dynamics over a randomly undulating disk surface

Author(s): Matsuoka, H.; Fukui, S.; Kato, T.

Author Affiliation: Dept. of Appl. Math. & Phys., Tottori Univ., Japan

Journal: IEEE Transactions on Magnetics vol.39, no.2 p.864-9

Publisher: IEEE,

Publication Date: March 2003 Country of Publication: USA

CODEN: IEMGAQ ISSN: 0018-9464

SICI: 0018-9464(200303)39:2L:864:IMFC;1-T

Material Identity Number: I101-2003-004

U.S. Copyright Clearance Center Code: 0018-9464/03/\$17.00

DOI: 10.1109/TMAG.2003.808942

Language: English

Subfile: C

Copyright 2003, IEE

...Abstract: disk surface are analyzed considering the surface energy of a thin liquid film lubricant. The **head - suspension assembly** is described in terms of a three-degrees-of-freedom (3-DOF) model. The configuration...

Descriptors: **disc drives** ;

...Identifiers: **head - suspension assembly** ; ...

... **hard disk drives** ;

18/3,K/6 (Item 6 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

08523049 INSPEC Abstract Number: B2003-03-3120B-021, C2003-03-5320C-018

Title: Effects of surface energy of thin film lubricant on dynamics of a contact recording head

Author(s): Matsuoka, H.; Fukui, S.; Kato, T.

Author Affiliation: Dept. of Appl. Math. & Phys., Tottori Univ., Japan

Conference Title: Digest of the Asia-Pacific Magnetic Recording

Conference 2002 (Cat. No.02EX584) p.BP2-01-BP2-02

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2002 Country of Publication: USA 216 pp.

ISBN: 0 7803 7509 2 Material Identity Number: XX-2002-02993

U.S. Copyright Clearance Center Code: 0-7803-7509-2/02/\$17.00

Conference Title: Digest of the Asia-Pacific Magnetic Recording

Conference 2002

Conference Sponsor: IEEE Singapore Sect.; IEEE Magnetics Soc.; ASME

Conference Date: 27-29 Aug. 2002 Conference Location: Singapore

Language: English

Subfile: B C

Copyright 2003, IEE

...Abstract: contact recording head were analyzed considering the surface energy of thin liquid film lubricant. The **head - suspension assembly** was described in terms of three-degrees-of-freedom (3-DOF) model. The configuration of...

Descriptors: **disc drives** ;

...Identifiers: **head - suspension assembly** ; ...

... **hard disk drives** ;

18/3,K/7 (Item 7 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

08523039 INSPEC Abstract Number: B2003-03-3120B-012, C2003-03-5320C-008

Title: Flow induced vibration of head suspension assemblies in hard drives

Author(s): Tadepalli, S.; Anandan, P.

Author Affiliation: Seagate Technol., Bloomington, MN, USA
Conference Title: Digest of the Asia-Pacific Magnetic Recording
Conference 2002 (Cat. No.02EX584) p.AP3-01-AP3-02
Publisher: IEEE, Piscataway, NJ, USA
Publication Date: 2002 Country of Publication: USA 216 pp.
ISBN: 0 7803 7509 2 Material Identity Number: XX-2002-02993
U.S. Copyright Clearance Center Code: 0-7803-7509-2/02/\$17.00
Conference Title: Digest of the Asia-Pacific Magnetic Recording
Conference 2002
Conference Sponsor: IEEE Singapore Sect.; IEEE Magnetics Soc.; ASME
Conference Date: 27-29 Aug. 2002 Conference Location: Singapore
Language: English
Subfile: B C
Copyright 2003, IEE

Title: Flow induced vibration of head suspension assemblies in hard drives

Abstract: Aeroelastic effects are observed due to the airflow excitation on the head suspension assembly in disc drives. Experimentally measured off-track slider motion and out-of-plane suspension motion follow an analytical...

Descriptors: **disc drives ;**

...Identifiers: **head suspension assemblies ; ...**

... **hard drives ; ...**

... **disc drives ;**

18/3,K/8 (Item 8 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

08479706 INSPEC Abstract Number: C2003-01-5320C-093

Title: Adopting Taguchi method for designing high shock resistant head suspension assembly for mobile hard disk drives

Author(s): Takahashi, H.; Shindo, H.; Saegusa, S.; Nakamura, S.; Matsuda, Y.

Author Affiliation: Data Storage Syst. Div., Hitachi Ltd., Kanagawa, Japan

Conference Title: Intermag Europe 2002 Digest of Technical Papers. 2002 IEEE International Magnetics Conference (Cat.No.02CH37323) p.DP11

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2002 Country of Publication: USA vii+513 pp.

ISBN: 0 7803 7365 0 Material Identity Number: XX-2002-01368

U.S. Copyright Clearance Center Code: 0-7803-7365-0/02/\$17.00

Conference Title: Intermag Europe 2002 Digest of Technical Papers. 2002 IEEE International Magnetics Conference

Conference Sponsor: Magnetic Soc. IEEE

Conference Date: 28 April-2 May 2002 Conference Location: Amsterdam, Netherlands

Language: English

Subfile: C

Copyright 2002, IEE

Title: Adopting Taguchi method for designing high shock resistant head suspension assembly for mobile hard disk drives

Abstract: Summary form only given. Shock resistance is becoming very important issue for mobile **hard disk drives (HDD)**. The Taguchi method was applied to designing the suspension in order to improve the...

... characteristics of the suspension by using a weighted function and developed a high shock resistant **head suspension assembly**.

Descriptors: **disc drives** ;

Identifiers: mobile **hard disk drives** ; ...

... **head suspension assembly design**

18/3,K/9 (Item 9 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

08473480 INSPEC Abstract Number: B2003-01-3120B-075

Title: Dynamics of liquid meniscus bridge of intermittent contact slider

Author(s): Matsuoka, H.; Fukui, S.; Morishita, H.

Author Affiliation: Dept. of Appl. Math. & Phys., Tottori Univ., Japan

Conference Title: Intermag Europe 2002 Digest of Technical Papers. 2002

IEEE International Magnetism Conference (Cat.No.02CH37323) p.BQ5

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2002 Country of Publication: USA vii+513 pp.

ISBN: 0 7803 7365 0 Material Identity Number: XX-2002-01368

U.S. Copyright Clearance Center Code: 0-7803-7365-0/02/\$17.00

Conference Title: Intermag Europe 2002 Digest of Technical Papers. 2002

IEEE International Magnetism Conference

Conference Sponsor: Magnetic Soc. IEEE

Conference Date: 28 April-2 May 2002 Conference Location: Amsterdam, Netherlands

Language: English

Subfile: B

Copyright 2002, IEE

...Abstract: dynamic force is generated in the liquid meniscus bridge and affects the dynamics of the **head - suspension assembly** significantly.

Descriptors: **disc drives** ;

...Identifiers: **head - suspension assembly** ;

18/3,K/10 (Item 10 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

08233848 INSPEC Abstract Number: B2002-05-3120B-019, C2002-05-5320C-008

Title: Development of shear-mode piezoelectric microactuator for precise head positioning

Author(s): Koganezawa, S.; Hara, T.

Author Affiliation: Fujitsu Labs. Ltd, Japan

Journal: Fujitsu Scientific and Technical Journal vol.37, no.2 p.

212-19

Publisher: Fujitsu,

Publication Date: 2001 Country of Publication: Japan

CODEN: FUSTA4 ISSN: 0016-2523

SICI: 0016-2523(2001)37:2L;212:DSMP;1-F

Material Identity Number: F016-2002-001
Language: English
Subfile: B C
Copyright 2002, IEE

...Abstract: drives. This microactuator is based on the shear deformation of piezoelectric elements and drives the **head suspension assembly**. The actuator is suitable for thin devices and is easily manufactured because of its simple...

Descriptors: **disc drives** ;
...Identifiers: **head suspension assembly** ;

18/3,K/11 (Item 11 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2007 Institution of Electrical Engineers. All rts. reserv.

07979371 INSPEC Abstract Number: B2001-08-2860A-016, C2001-08-5320C-009

Title: High-bandwidth macro/microactuation for hard disk drive

Author(s): Ma Jianxu; Ang, M.H., Jr.

Author Affiliation: Dept. of Mech. & Production Eng., Nat. Univ. of Singapore, Singapore

Journal: Proceedings of the SPIE - The International Society for Optical Engineering Conference Title: Proc. SPIE - Int. Soc. Opt. Eng. (USA)
vol.4194 p.94-102

Publisher: SPIE-Int. Soc. Opt. Eng.

Publication Date: 2000 Country of Publication: USA

CODEN: PSISDG ISSN: 0277-786X

SICI: 0277-786X(2000)4194L:94:HBMM;1-V

Material Identity Number: C574-2001-048

U.S. Copyright Clearance Center Code: 0277-786X/2000/\$15.00

Conference Title: Microrobotics and Microassembly II

Conference Sponsor: SPIE

Conference Date: 5-6 Nov. 2000 Conference Location: Boston, MA, USA

Language: English

Subfile: B C

Copyright 2001, IEE

Title: High-bandwidth macro/microactuation for hard disk drive

Abstract: The track density of **hard disk drives** has been increasing by 30%/year. The increase in bandwidth is limited by the presence...

... In the paper, a piezoelectric microactuator was successfully designed and mounted on the suspension in **hard disk drives**. The microactuator is based on the deformation in the piezoelectric effect, and drives the **head suspension assembly**. The paper describes the structure of macro/micro actuators, principles of operation, and mechanical characteristics...

Descriptors: **disc drives** ;
...Identifiers: **hard disk drive** ; ...

... **head suspension assembly** ;

18/3,K/12 (Item 12 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2007 Institution of Electrical Engineers. All rts. reserv.

07880568 INSPEC Abstract Number: C2001-05-5320C-026

Title: Effect of dual-stage actuator on positioning accuracy in 10 k rpm magnetic disk drives

Author(s): Koganezawa, S.; Hara, T.; Uematsu, Y.; Yamada, T.

Author Affiliation: File Memory Lab., Fujitsu Labs. Ltd., Atsugi, Japan

Conference Title: 2000 Asia-Pacific Magnetic Recording Conference.

Digests of APMRC2000 on Mechanical and Manufacturing Aspects of HDD (Cat. No.00EX395) p.WA6/1-2

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2000 Country of Publication: USA 149 pp.

ISBN: 0 7803 6254 3 Material Identity Number: XX-2001-00003

U.S. Copyright Clearance Center Code: 0 7803 6254 3/2000/\$10.00

Conference Title: 2000 Asia-Pacific Magnetic Recording Conference. Digest of APMRC2000

Conference Sponsor: IEEE Magnetics Soc.; IEEE Magnetics Soc. Japan Chapter; Storage Res. Consortium, Japan; ASME; Int. Disk Drive Equipment Mater. Assoc. Japan (IDEMA Japan); Inst. Electr. Eng. Japan; Sensor & Micromachine Div.; Japan Soc. Tribologists (JAST); Japan Soc. Mech. Eng. (JSME); Japan Soc. Precision Eng. (JSPE); Magnetic Soc. Japan (MSJ)

Conference Date: 6-8 Nov. 2000 Conference Location: Tokyo, Japan

Language: English

Subfile: C

Copyright 2001, IEE

...Abstract: actuator for dual-stage actuator systems in magnetic disk drives. This microactuator, which drives the head suspension assembly, is based on the shear deformation of piezoelectric elements. We installed the microactuator in one...

Descriptors: disc drives ;

...Identifiers: head suspension assembly ;

18/3,K/13 (Item 13 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

07628629 INSPEC Abstract Number: B2000-08-3120B-011, C2000-08-5320C-009

Title: Measurement technique for dynamic characteristics of HDD head - suspension assembly in normal operating conditions

Author(s): Jeong, T.G.; Chun, J.I.; Chung, C.C.; Byun, Y.K.; Ro, K.C.

Author Affiliation: Sch. of Mech. Eng., Konkuk Univ., Seoul, South Korea

Conference Title: Advances in Information Storage Systems. Vol. 9

Part vol.1 p.47-61 vol.1

Editor(s): Bhushan, B.; Ono, K.

Publisher: World Scientific, Singapore

Publication Date: 1998 Country of Publication: Singapore 2 vol.

371+403 pp.

ISBN: 981 02.3616 6 Material Identity Number: XX-1998-02424

Conference Title: Proceedings of International Conference on Micromechatronics for Information for Information and Precision Equipment (MIPE'97) (Vol.9)

Conference Date: 20-23 July 1997 Conference Location: Tokyo, Japan

Language: English

Subfile: B C

Copyright 2000, IEE

Title: Measurement technique for dynamic characteristics of HDD head - suspension assembly in normal operating conditions
Descriptors: disc drives ;
...Identifiers: HDD head - suspension assembly ;

18/3,K/14 (Item 14 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

07468206 INSPEC Abstract Number: C2000-02-3380Z-003

Title: Integrated optimal design of passive and active elements for hard disk servo systems

Author(s): Obinata, G.; Saito, K.; Hiramoto, K.; Doki, H.

Author Affiliation: Akita Univ., Japan

Conference Title: Proceedings of the 1999 IEEE International Conference on Control Applications (Cat. No.99CH36328) Part vol. 1 p.92-6 vol. 1

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 1999 **Country of Publication:** USA 2 vol. (xlvii+1802)

pp.

ISBN: 0 7803 5446 X **Material Identity Number:** XX-1999-02530

U.S. Copyright Clearance Center Code: 0 7803 5446 X/99/\$10.00

Conference Title: Proceedings of the 1999 IEEE International Conference on Control Applications

Conference Sponsor: IEEE Control Syst. Soc

Conference Date: 22-27 Aug. 1999 **Conference Location:** Kohala Coast, HI, USA

Language: English

Subfile: C

Copyright 2000, IEE

...Abstract: high speed access of magnetic disk drives, integrated optimization method is applied for designing the head - suspension assemblies . Approximation is used to the model of a head - suspension assembly , which makes it possible to obtain a nice analytical result on Riccati equations. Using this...

...Descriptors: disc drives ;

...Identifiers: head - suspension assembly ;

18/3,K/15 (Item 15 from file: 2)

DIALOG(R)File 2:INSPEC

(c) 2007 Institution of Electrical Engineers. All rts. reserv.

07198663 INSPEC Abstract Number: B1999-05-8380M-002, C1999-05-3260P-003

Title: Dual-stage actuator system for magnetic disk drives using a shear mode piezoelectric microactuator

Author(s): Koganezawa, S.; Uematsu, Y.; Yamada, T.; Nakano, H.; Inoue, J.; Suzuki, T.

Author Affiliation: File Memory Lab., Fujitsu Labs. Ltd., Atsugi, Japan

Journal: IEEE Transactions on Magnetics **Conference Title:** IEEE Trans.

Magn. (USA) vol.35, no.2, pt.1 p.988-92

Publisher: IEEE,

Publication Date: March 1999 **Country of Publication:** USA

CODEN: IEMGAQ **ISSN:** 0018-9464

SICI: 0018-9464(199903)35:2:1L.988:DSAS;1-A

Material Identity Number: I101-1999-004
U.S. Copyright Clearance Center Code: 0018-9464/99/\$10.00
Conference Title: Second Asia-Pacific Magnetic Recording Conference (APMRC'98)
Conference Date: 29-31 July 1998 Conference Location: Singapore
Language: English
Subfile: B C
Copyright 1999, IEE
...Abstract: drives. This microactuator is based on the shear deformation of piezoelectric elements, and drives the **head suspension assembly**. The actuator is suitable for thin devices, and is easily manufactured because of its simple...
Descriptors: **disc drives** ;
...Identifiers: **head suspension assembly** ;

18/3,K/16 (Item 1 from file: 8)
DIALOG(R)File 8: Ei Compendex(R)
(c) 2007 Elsevier Eng. Info. Inc. All rts. reserv.

08774347 E.I. No: EIP01015492552
Title: High bandwidth macro/micro-actuation for hard -disk drive
Author: Jianxu, Ma; Ang, Marcelo H. Jr.
Corporate Source: Natl Univ of Singapore, Singapore, Singapore
Conference Title: Microrobotics and Microassembly II
Conference Location: Boston, USA Conference Date: 20001105-20001106
E.I. Conference No.: 57847
Source: Proceedings of SPIE - The International Society for Optical Engineering v 4194 2000. Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, USA. p 94-102
Publication Year: 2000
CODEN: PSISDG ISSN: 0277-786X
Language: English

Title: High bandwidth macro/micro-actuation for hard -disk drive
Abstract: The track density of **hard disk drives** had been increasing of 30%/year in these last years. The increase in bandwidth is...

...this paper, a novel piezoelectric microactuator was successfully designed and mounted on the suspension in **hard disk drives**. The microactuator is based on the deformation in piezoelectric effect, and drives the **head suspension assembly**. The paper describes the structure of macro/micro actuators, its principles of operation and mechanical...

18/3,K/17 (Item 1 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online
(c) 2007 ProQuest Info&Learning. All rts. reserv.

01737158 ORDER NO: AADAA-I9966436
Effect of airflow on the vibration of head gimbal assembly and disk flutter in a hard disk drive
Author: Kim, Byoung-Cheol
Degree: Ph.D.
Year: 1999

Corporate Source/Institution: University of California, Berkeley (0028)
Source: VOLUME 61/03-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 1595. 95 PAGES

**Effect of airflow on the vibration of head gimbal assembly and disk flutter
in a hard disk drive**

The **hard disk drive** is the most commonly used information storage device in the computer industry today. Due to constant demand for higher performance, new generations of **hard disk drives** are required to pack higher data densities and to transfer data at higher rates. More precise motion control of the dynamic components in **hard disk drives** is the key to improved performance of **hard disk drives**. Extensive research on the dynamics of the **head suspension assembly** and the disk, including the excitation from the surrounding air flow at high disk rotation...

...The present study investigates experimentally the air flow excitation of vibration of the slider and **head suspension assembly**, and it also investigates aeroelastic disk flutter.

The contributions of the present study are threefold...

...is more significant.

Third, an experimental technique, predicting the onset of aeroelastic flutter in a **hard disk drive**, was presented. The aerodynamic force was modeled by the sum of dissipative and circulatory linear...

18/3,K/18 (Item 2 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online
(c) 2007 ProQuest Info&Learning. All rts. reserv.

01566881 ORDER NO: AAD97-23258
**AN EFFICIENT APPROACH TO L(1) OPTIMAL CONTROL AND ITS APPLICATION TO
HARD
DISK TRACKING CONTROL**

Author: YOON, HOSIK

Degree: PH.D.

Year: 1996

Corporate Source/Institution: UNIVERSITY OF CALIFORNIA, BERKELEY (0028)
Source: VOLUME 58/02-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 942. 134 PAGES

An approach to the tracking control problem of the **head - suspension assembly** of a **hard disk drive** is presented.

A dynamic model of the head-disk assembly is obtained from FEM analysis...

18/3,K/19 (Item 1 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2007 FIZ TECHNIK. All rts. reserv.

01695216 20021103937
**Dynamic characteristics of an in-contact head slider considering meniscus
force: Part 3 - Wear durability and optimization of surface energy of
liquid lubricant under perfect contact condition**
Matsuoka, H; Fukui, S; Kato, T

Tottori Univ., J; Agency of Ind. Sci. a. Technol. (AIST), Tsukuba, J
Transactions of the ASME, Journal of Tribology, v124, n4, pp801-810, 2002
Document type: journal article Language: English
Record type: Abstract
ISSN: 0742-4787

ABSTRACT:

...a computer simulator for in-contact head slider motion where a 3-DOF model of **head - suspension assembly** was introduced and effects of meniscus force between the slider and the disk were considered...

...from the viewpoints of both bouncing vibration and wear durability by not only 3-DOF **head - suspension assembly** model over a sinusoidal disk surface undulation but also 1-DOF **head - suspension assembly** model over a sinusoidal disk surface undulation. In addition to the critical frequency of bouncing...

DESCRIPTORS: EQUATIONS OF MOTION; DYNAMIC CHARACTERISTICS; **HARD DISC DRIVES** ; DEGREE OF FREEDOM; SLIDING CONTACT; CRITICAL FREQUENCY; SURFACE ENERGY; IMPROVEMENT; SIMULATORS

18/3,K/20 (Item 1 from file: 99)
DIALOG(R)File 99:Wilson Appl. Sci & Tech Abs
(c) 2007 The HW Wilson Co. All rts. reserv.

1460531 H.W. WILSON RECORD NUMBER: BAST96066935
Experimental studies of a head/disk interface subjected to impulsive excitation during nonoperation
Ishimaru, Naohiko,
Journal of Tribology v. 118 (Oct. '96) p. 807-12
DOCUMENT TYPE: Feature Article ISSN: 0742-4787

...ABSTRACT: phenomenon governing the shock-proof performance was found to be the slap movement of the **head suspension assembly** . It was concluded that a new mechanism must be developed to prevent this movement if...

DESCRIPTORS: Hard disk drives --;

18/3,K/21 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal
(c) 2007 INIST/CNRS. All rts. reserv.

15107052 PASCAL No.: 01-0267461
High bandwidth macro/micro-actuation for hard-disk drive
Microrobotics and microassembly II : Boston MA, 5-6 November 2000
MA JIANXU; ANG Marcelo H JR
NELSON Bradley J, ed; BREGUET Jean-Marc, ed
Dept. of Mechanical & Production engineering, National University of Singapore, Singapore
International Society for Optical Engineering, Bellingham WA, United States
Microrobotics and microassembly. Conference, 2 (Boston MA USA)
2000-11-05

Journal: SPIE proceedings series, 2000, 4194 94-102
Language: English

Copyright (c) 2001 INIST-CNRS. All rights reserved.

High bandwidth macro/micro-actuation for hard-disk drive

The track density of hard disk drives had been increasing of 30%/year in these last years. The increase in bandwidth is...

...this paper, a novel piezoelectric microactuator was successfully designed and mounted on the suspension in hard disk drives. The microactuator is based on the deformation in piezoelectric effect, and drives the head suspension assembly. The paper describes the structure of macro/micro actuators, its principles of operation and mechanical...

?

19/3,K/1 (Item 1 from file: 35)

DIALOG(R)File 35:Dissertation Abs Online

(c) 2007 ProQuest Info&Learning. All rights reserved.

01737158 ORDER NO: AADAA-I9966436

Effect of airflow on the vibration of head gimbal assembly and disk flutter in a hard disk drive

Author: Kim, Byoung-Cheol

Degree: Ph.D.

Year: 1999

Corporate Source/Institution: University of California, Berkeley (0028)

Source: VOLUME 61/03-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 1595. 95 PAGES

...key to improved performance of hard disk drives. Extensive research on the dynamics of the head suspension assembly and the disk, including the excitation from the surrounding air flow at high disk rotation...

...The present study investigates experimentally the air flow excitation of vibration of the slider and head suspension assembly, and it also investigates aeroelastic disk flutter.

The contributions of the present study are threefold...

...excitation of the slider vibration is significant near the disk hub. The amplitude of slider vibration was reduced substantially by use of a hub with a flat surface.

Second, turbulence induced vibration of...

...the load beam correlates strongly to the radial slider vibration.

Changes to the cover geometry reduced the slider vibration in the first torsional mode of head gimbal assembly, especially at higher disk speeds where...

19/3,K/2 (Item 2 from file: 35)

DIALOG(R)File 35:Dissertation Abs Online

(c) 2007 ProQuest Info&Learning. All rights reserved.

01566881 ORDER NO: AAD97-23258

AN EFFICIENT APPROACH TO L(1) OPTIMAL CONTROL AND ITS APPLICATION TO

**HARD
DISK TRACKING CONTROL**

Author: YOON, HOSIK

Degree: PH.D.

Year: 1996

Corporate Source/Institution: UNIVERSITY OF CALIFORNIA, BERKELEY (0028)

Source: VOLUME 58/02-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

PAGE 942. 134 PAGES

An approach to the tracking control problem of the head - suspension assembly of a hard disk drive is presented.

A dynamic model of the head-disk assembly...

...order to provide robust performance for finite time tracking. These controllers can successfully reduce the residual vibration of the flexible modes induced by the system's seek motion and can provide closed...

?

24/3,K/1 (Item 1 from file: 9)

DIALOG(R)File 9:Business & Industry(R)

(c) 2007 The Gale Group. All rts. reserv.

02269937 Supplier Number: 25844805 (USE FORMAT 7 OR 9 FOR FULLTEXT)

STMicro says device reduces effects of mechanical vibration -- MEMS

sensor improves hard - drive tracking

(STMicroelectronics demonstrates L6670 rotational vibration sensor device, which can be used to control tracking accuracy of disk-drive head positioners)

Electronic Engineering Times, p 62

September 25, 2000

DOCUMENT TYPE: Journal ISSN: 0192-1541 (United States)

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 318

STMicro says device reduces effects of mechanical vibration -- MEMS

sensor improves hard - drive tracking

24/3,K/2 (Item 1 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)

(c) 2007 ProQuest Info&Learning. All rts. reserv.

02822270 767575881

ANTEC'S SONATA PC A REAL EYE-CATCHER

Baymack, Bradley

CRN n1124 PP: 53 Dec 6, 2004

JRNL CODE: CRN

WORD COUNT: 350

...TEXT: drive bays in individual trays. Each tray is surrounded by a rubber ring to help reduce hard - drive vibrations and further reduce noise. The individual trays are mounted sideways in the drive cage, making installation a breeze...

24/3,K/3 (Item 2 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)
(c) 2007 ProQuest Info&Learning. All rts. reserv.

02035861 54968121
PSAs a prolific partner
Daga, Sunil; DeRoy, Steven
Appliance Manufacturer v48n6 PP: 46-48 Jun 2000
ISSN: 0003-679X JRNL CODE: APL
WORD COUNT: 975

...TEXT: constraining layer, is typically aluminum or steel. Constrained layer dampers are used extensively in computer hard disk drives to dampen vibrations and reduce noise.

Identification graphics, nameplates

Appliances represent the vision and know-how of their respective OEM...

24/3,K/4 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2007 The Gale Group. All rts. reserv.

10908766 Supplier Number: 111453381 (USE FORMAT 7 FOR FULLTEXT)
FirewireDirect: New 2Gb Fibre Channel RAID Storage Solutions.
Business Wire, p5019
Dec 19, 2003
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 330

... state, voltages and temperatures

- Powerful security and backup features
- Rock solid construction featuring a suspended hard drive tray design that reduces disk vibration, enhancing stability and extending life span
- An awesome Return On Investment (ROI), with cross platform...

24/3,K/5 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2007 The Gale Group. All rts. reserv.

08550036 Supplier Number: 73375778 (USE FORMAT 7 FOR FULLTEXT)
Keep that noise down!(pressure sensitive adhesives can help control noise and vibrations)
Epple, Tom
Machine Design, v73, n7, p90

April 5, 2001

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Trade

Word Count: 1852

... aluminum or steel. The computer hard-disk industry extensively uses constrained-layer dampers to quell vibrations and reduce noise from hard drives .

Selecting a PSA

When using a PSA-based product for sound control, the first question

...

24/3,K/6 (Item 3 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2007 The Gale Group. All rts. reserv.

07863700 Supplier Number: 65573501 (USE FORMAT 7 FOR FULLTEXT)

STMicro says device reduces effects of mechanical vibration – MEMS

sensor improves hard - drive tracking.(Company Business and Marketing)

Ohr, Stephan

Electronic Engineering Times, p62

Sept 25, 2000

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Trade

Word Count: 334

STMicro says device reduces effects of mechanical vibration – MEMS

sensor improves hard - drive tracking.(Company Business and Marketing)

24/3,K/7 (Item 1 from file: 20)

DIALOG(R)File 20:Dialog Global Reporter

(c) 2007 Dialog. All rts. reserv.

37919954 (USE FORMAT 7 OR 9 FOR FULLTEXT)

Antec Powers Up System Builders With Newest Solution Series Computer Cases

MARKET WIRE INCORPORATED

September 20, 2004

JOURNAL CODE: MWIC LANGUAGE: English RECORD TYPE: FULLTEXT

WORD COUNT: 481

(USE FORMAT 7 OR 9 FOR FULLTEXT)

Other features include a 120mm low speed rear fan, rubber grommets to reduce hard drive vibrations and noise and a Chassis Air Guide on the side panel for efficient CPU cooling...

24/3,K/8 (Item 2 from file: 20)

DIALOG(R)File 20:Dialog Global Reporter

(c) 2007 Dialog. All rts. reserv.

32525523 (USE FORMAT 7 OR 9 FOR FULLTEXT)

Zalman Tech hones expertise to make computers noise-free

KOREA HERALD

November 28, 2003

JOURNAL CODE: FKHD LANGUAGE: English RECORD TYPE: FULLTEXT
WORD COUNT: 533

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... end computers, servers and workstations.

The heat pipe cooler dissipates the heat generated by a **hard disk drive** and **reduces vibration** that is delivered to the case. The four wheels on the TNN 500A can endure...

24/3,K/9 (Item 1 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)

(c) 2007 The Gale Group. All rts. reserv.

02848253 SUPPLIER NUMBER: 125838357 (USE FORMAT 7 OR 9 FOR FULL TEXT
)

Antec's Sonata PC A Real Eye-Catcher.(Product/Service Evaluation)

Baymack, Bradley

Computer Reseller News, 53

Dec 6, 2004

DOCUMENT TYPE: Product/Service Evaluation ISSN: 0893-8377

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 390 LINE COUNT: 00034

... drive bays in individual trays. Each tray is surrounded by a rubber ring to help **reduce hard - drive vibrations** and further **reduce noise**. The individual trays are mounted sideways in the drive cage, making installation a breeze...

24/3,K/10 (Item 1 from file: 647)

DIALOG(R)File 647:CMP Computer Fulltext

(c) 2007 CMP Media, LLC. All rts. reserv.

01281612 CMP ACCESSION NUMBER: CRN20041206S0078

Antec's Sonata PC A Real Eye-Catcher

Bradley Baymack

CRN, 2004, n 1124, PG53

PUBLICATION DATE: 041206

JOURNAL CODE: CRN LANGUAGE: English

RECORD TYPE: Fulltext

SECTION HEADING: Custom System/White Box

WORD COUNT: 356

... drive bays in individual trays. Each tray is surrounded by a rubber ring to help **reduce hard - drive vibrations** and further **reduce noise**. The individual trays are mounted sideways in the drive cage, making installation a breeze...

24/3,K/11 (Item 2 from file: 647)

DIALOG(R)File 647:CMP Computer Fulltext

(c) 2007 CMP Media, LLC. All rts. reserv.

01223295 CMP ACCESSION NUMBER: EET20000918S0042
**STMicro says device reduces effects of mechanical vibration - MEMS
sensor improves hard - drive tracking**
Stephan Ohr
ELECTRONIC ENGINEERING TIMES, 2000, n 1132, PG62
PUBLICATION DATE: 000918
JOURNAL CODE: EET LANGUAGE: English
RECORD TYPE: Fulltext
SECTION HEADING: SEMICONDUCTORS
WORD COUNT: 332

**STMicro says device reduces effects of mechanical vibration - MEMS
sensor improves hard - drive tracking**
?